THIS WEEK'S National Petroleum NEWS

Coming Meetings

American Petroleum Institute, Mid-Year Divisional Meetings, Mayo Hotel, Tulsa, June 1, 2, 3.

Society of Automotive Engineers, White Sulphur Springs, W. Va., June 12 to 17.

West Virginia Oil Marketers Association, Daniel Boone Hotel, Charleston, W. Va., June 17.

American Society for Testing Materials, Atlantic City, N. J., June 20 to 24.

National Petroleum Association, annual meeting, Atlantic City, N. J., Sept. 14, 15, 16.

American Gas Association, Atlantic City, N. J., Oct. 10 to 14.

American Petroleum Institute, annual meeting, Houston, Tex., Nov. 15, 16, 17.

Rocky Mountain Oil and Gas Association, Rainbow Hotel, Great Falls, Mont., December (dates not set).

1933

National Petroleum Association, Cleveland Hotel, Cleveland, O., April 20, 21.

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The Service Station Goes Modern

AND not modern only in the sense that modernistic materials and designs have been used; but modern also in that it has been planned and built throughout to serve today's needs in merchandising and servicing at oil company stations, with an eye also to avoiding early obsolescence through a definite replacement value.

An article describing in detail how one oil marketing company has experimented with developing this distinctive and individualized type of station, to fit the much wider needs of oil stations today, will be a feature of the June 1st issue of NATIONAL PETROLEUM NEWS.

OIL COMPANY HEADQUARTERS

Shell Oil Company

THE new $4,000,000 Shell Oil Co. building in San Francisco, floodlighted. It is at the intersection of Bush and Battery Sts. and First and Market, in the heart of the commercial district. Seventeen of its 28 floors are occupied exclusively by Shell and subsidiaries. The building stands upon an 80-foot concrete caisson-type foundation, specially designed to resist wind and earthquake stresses.

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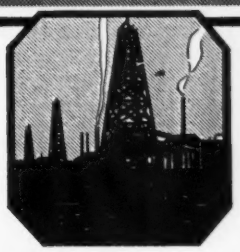

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California Independents To Devise New Curtailment Program

By Jack Westsmith
N. P. N. Staff Writer

LOS ANGELES, May 21

EFFECTIVE May 23, California's total allowable production of crude oil will be 476,700 barrels a day, 20,000 barrels above the previous proration goal of 456,700 barrels, which was established Jan. 1 last and never even closely approximated in practice. Actual production recently has been around 520,000 barrels a day.

This action followed a week of hectic meetings in which major California oil companies sat on the side lines watching, with a strict air of neutrality, efforts of independent operators to guide the west coast industry into a safe and sane method of production control.

The early voluntary curtailment program sponsored by the larger interests failed in part, through the lack of co-operation of the smaller independent operators. The same independents were a large factor in the defeat of the Sharkey oil control bill, drawn up to give the state definite authority to regulate production.

Now the larger interests have gone to the same independents and asked them, in effect, to draw up a program to their own idea of the method the oil industry should voluntarily use to insure a fair and orderly curtailment program. They are to have their chance before the larger interests again take a hand. The announcement for May 23d is the result.

It is understood actual field and well allowables will be predicted on a basis of protection for marginal wells, with the brunt of the proration burden borne by wells in a state of flush production.

Administration of the revised voluntary curtailment plan will rest in two general committees. One, the Oil Producers Central Proration Committee, will represent operating producers in the state and supplant the General Operators' Committee of the previous program.

H. P. Grimm, president of Pacific Western Oil Co. and former state oil umpire, was elected president of the new central proration committee the past week. Other members include representatives of the various field committees, all on the payroll of independent companies.

This committee will see to the application of the field allowables to be established by the other general committee, which goes under the promising title: The Executive Committee for Equitable Curtailment of the Oil Industry of California.

The executive committee has been given authority to determine the percentage of curtailment necessary in the state and to administer the allotments to the various fields and oil producing districts.

It is composed of three representatives from the Independent Petroleum Association, three from the Oil Producers Sales Agency and three from the operators' field committees. Mr. Grimm as chairman of the central committee, will also sit on the executive committee.

REPRESENTING a cross section of the independent oil interests in the state, this executive committee is to be the answer to the complaints of independent factions that they have had no representation and, therefore, no say in previous curtailment measures.

The executive committee has asked that a representative of the Independent Oil Producers Agency, of the San Joaquin Valley be appointed to sit in on its meetings. It is also contemplating including three members not directly connected with

the oil business, to be representatives of the general public.

Officers of the executive committee are: William Keck, head of Superior Oil Co., chairman; Ralph B. Lloyd, president of the Oil Producers Sales Agency and a large royalty owner, vice-chairman; and W. H. Geis, Arrowhead Oil Co., and director of O. P. S. A., secretary.

The emergency curtailment measure prepared by this committee, if put into effect, will reduce the production of crude and prevent further additions to storage. It provides for a minimum allotment to each well in the state. This minimum will be determined by using as a basis the productivity of average producing wells in each of the various fields.

Total production of any well is to be finally determined by first allowing the minimum production and then applying curtailment of from 25 to 76 per cent, depending upon the field.

Chairmen of the 13 field committees, who make up the Central Proration Committee, have accepted the proposal and urged its immediate ratification upon their respective committee members.

Mr. Keck, as chairman of the executive committee, has called the attention of California operators to the fact that, as a result of complete co-operation of operators, production in the Mid-Continent has been curtailed so effectively an advance in the price has been obtained.

Mr. Keck, one of the largest financial backers of the campaign against the Sharkey bill, is playing an important part in the present effort to stabilize the California industry.

Under the new curtailment program, Umpire Neal H. Anderson will continue to handle the routine mechanical work of curtailment. Field proration schedules will be distributed from the umpire's office much in the same manner as previously.

The recent decision of the United States Supreme Court in the Champlin case opens a new way for possible enforcement of the much-battered California Gas Conservation Law, it is thought. However, in view of the present effort at voluntary curtailment, it is not expected that any action will be taken to enforce the anti gas-waste law now on the state's statute books. Failure of operators to agree on a voluntary, program might permit the California governor to exercise the police powers required to enforce the gas act.

Two Oil Leaders Endorse Production Control by Interstate Pact

SAN FRANCISCO, May 20.

CONTROL of oil production, by the individual oil producing state, in balance with reasonable market demand as estimated by some joint committee, or agency, of all principal oil producing states, was advocated by two prominent oil men before the annual meeting of the United States Chamber of Commerce here this week.

Thus was endorsed unofficially, the idea of the interstate oil compact, which was presented before the oil industry by an administration spokesman early in the Hoover presidency, and which is now the basis for a bill introduced in Congress by Senator Thomas, of Oklahoma.

The two spokesman for the oil industry before the national chamber meeting were W. S. Farish, Houston, president of the Humble Oil & Refining Co., and C. B. Ames, New York, vice president of The Texas Co.

Necessary reforms Mr. Farish would effect in production practice, he said, contemplate interstate co-operative action by compact, or through joint committees, to ascertain the volume of oil required to meet reasonable market demand and to fix appropriate participation of the respective states in the available market outlet. It contemplates as well, he said, limitation of foreign production and of imports from abroad proportionate to the domestic restriction.

Mr. Farish said he held it to be fundamental that all owners in a given pool are bound together by the character and habits of oil and gas in their natural reservoirs underground. "Producers are entitled to enjoy in common the benefits that arise from the reservoir pressure, the expansion of the gas and the orderly encroachment of edge or bottom water," he stated. "They can only enjoy these benefits fully if the production from the pool is intelligently controlled. The correlative rights of the various owners must be equitably adjusted and their general welfare protected through the prevention of waste."

Speaking on "What the Oil Industry Needs," Mr. Farish reviewed the ills the industry has encountered of late years and said, "rigidly conserving the excess oil in place as an underground reserve" automatically will bring an end to "over expansion of marketing and distributing facilities."

Adequate control of the oil industry requires co-operation of the principal oil producing states, but no state acting alone can satisfactorily control production because no one state has a monopoly of the oil, stated Mr. Ames in his address. He stressed the importance of an interstate pact, supported by congressional action.

He reviewed the work of the economics committees of the Federal Oil Conservation Board and the American Petroleum Institute in forecasting demand for petroleum products for from six to nine months ahead, as a guide to company executives in scaling their own operations. He said an interstate compact would not only provide for carrying on this work; but it would also provide a central agency which would allocate to each state the amount of oil it could produce to keep production within demand.

Mr. Ames also said it was necessary that importation of crude and products harmonize with the rate of development in this country and that this feature is embodied in the measure now pending in Congress.

THE EDITORS' VIEWPOINT

Prepare for a Loss in 1932 Gallonage

By Warren C. Platt, Editor

ALMOST important factor facing the oil industry right now is what the loss will be in gallonage of gasoline the rest of the year. We doubt if the industry realizes the extent of that possible loss nor its possible effect to the oil companies.

If the loss is as great as some companies think it will be, it calls for the most rigorous reduction in refinery runs by both large companies and small. If it is as small as some people think, it still calls for reductions by everyone.

Various experts and authorities are at work on this now. The first estimate of some of the industry's experts was a 4.6 per cent decline from last year. However, some companies now believe it will run over 20 per cent. That last may be a bit high, but a fair minimum decline for the industry to figure on right now would be 10 per cent and the industry would be much better off if it figured on 20 per cent until some unquestioned authorities with the best of figures came out to the contrary.

Even then, the industry should take their estimates with a grain of salt. This is still a year of depression. Business is not good and it is not going to be good for some time. In fact it may even get worse. I mean business in general and that is what will control our gasoline gallonage.

Preliminary estimates of motor car registrations show a loss of around 11 per cent in some representative states but this is not to be taken as conclusive either way. This loss will probably be reduced as some backward states get busy and enforce their laws for registration under this year's licenses. But even though this may be reduced, that does not tell to what extent the cars will be used. Many an owner will register a car and not use it as much as he did last year.

The oil industry will be a lot more fortunate than most other industries. We will not suffer the decline in our volume of other industries, nor the complete wiping out of our volume. But we will suffer a loss. That loss will probably be much less in the farmer states, despite all the weeping and wailing the poor (?) farmer does. He is well off compared with those who have been employed in factories and mills. The government could well cut off all farmer relief and spend the money for those who have been employed in business; but of course the farmers' alleged representatives (?) will holler and the unemployed in our cities have no such well paid representatives, so probably the farmer will get the money.

At all events gasoline gallonage this year will be down, and if the industry figures on a 20 per cent decline it will be far better off than if it figures on a 10 per cent decline and finds later on it happens to be 12 per cent.

This decline will apply to every company, every retailer, every jobber and every refiner. The retailer who cannot make a living on his reduced gallonage at present margins will simply have to fold up his shack and quit business. There will be no use joining a dealer's association and hiring a hungry lawyer to get a bigger margin. That dealer does not belong in the business.

The same is true of the jobber who cannot adjust himself and the same is true of refiners, big and little.

One thing may be set down as certain this year and that is that no one from the consuming public on owes a living to any one else. The industry should proceed on that basis. If it does, it will make money. If it doesn't it will just be too bad for some people.

Whoever has grand ideas and starts to horn in on some one else's business, will get into trouble, serious trouble.

• • •

Significance of the Champlin Decision

IMMEDIATELY, the effect of the decision of the U. S. Supreme Court in the Champlin Refining Co. case is to afford a thoroughgoing sanction to the state of Oklahoma in its efforts to regulate production to the level of market demand.

Remotely, it marks a trail along which state legislatures may travel in establishing the same degree of control.

It must be remembered that this decision, in its first effects, applies to Oklahoma alone. The central and controlling point of the state law is the principle of market demand as the basis for proration. This point has been sustained by the court. However, no other state has such provision.

Texas, whose producing activities now command the attention of the industry and over which proration control must be continually exercised for a long while, by state law, must regulate solely on the basis of waste. The Texas Railroad Commission cannot consider the demand

for oil from a pool, but must delve into the physical characteristics of each pool and ascertain the proper rate of withdrawal in order to prevent aboveground or subsurface waste.

How far legislatures in other states may go in the future in drafting legislation in which market demand for crude is the yardstick by which the degree of curtailment to be applied is measured is beyond the power of mortal man to foresee. The U. S. Supreme Court, in the Champlin decision, has shown the lawmakers the way, in the following language from its decision:

"Plaintiff insists that it has a vested right to drill wells upon the land covered by its leases and to take all the natural flow of oil and gas therefrom, so long as it does so without physical waste and devotes the production to commercial uses. But if plaintiff should take all the flow of its wells, there would inevitably result great physical waste, even if its entire production should be devoted to useful purposes.

"The improvident use of natural gas pressure inevitably attending such operations would cause great diminution in the quantity of crude oil ultimately to be recovered from the pool. Other lessees and owners of land above the pool would be compelled, for self-protection against plaintiff's taking, also to draw from the common source and so to add to the wasteful use of lifting pressure.

"And, because the lack, especially on the part of non-integrated operators, of means of transportation or appropriate storage and of market demand, the contest would, as is made plain by the evidence and the findings, result in surface waste of large quantities of crude oil."

New Basis for Proration Told Operators

LOS ANGELES, May 20.—Charles L. Kaiser, Coalinga, and R. E. Allen, Los Angeles, were guest speakers before 120 members of the San Joaquin Valley Chapter of American Petroleum Institute at Taft May 17.

Kaiser, a former employee of the State Division of Oil and Gas, related experiences and observations made during three years in the Dutch East Indies.

A caving shale body in the Miocene, which may be correlative to the Brown Shale found in California, he said was one serious obstacle to deep drilling in Sumatra. Fields developed to date have been characterized by a prolific production of high gravity crude. Ultimate recoveries have ranged as high as 13,000,000 barrels for discovery wells, but recent completions record initial productions of about 1000 barrels of 40-60 gravity oil per day.

"Recent Developments in the Proration of Production," was the subject of R. E. Allen, assistant umpire for the state. The speaker reviewed conditions in the American oil industry that have necessitated a curtailment of production and drilling activities, and discussed methods of proration tried in various districts under the guiding factors of time, acreage, potential, and reservoir (bottom hole) pressures.

Distribution of allotment on the basis of reservoir pressure was pointed out as an innovation that holds great promise and its use in several fields is being watched with interest by the industry.

In California, Mr. Allen said, there has been an increasing tendency to minimize the influence of potential in distributing allotments. He said the new California proration program will attempt a more methodical usage of the term "potential" as a proration factor.

Associated Sales Head Elected Director

LOS ANGELES, May 20.—B. I. Graves, general sales manager for the Associated Oil Co. was elected a director of the company at the annual meeting of stockholders.

Graves entered the Associated organization in 1909 as a junior clerk in the pipeline department of the Associated Pipe Line Co., a subsidiary. After filling various positions in the accounting and personnel departments of the parent oil company, he joined the sales department in 1922 and was sent to the Orient as general oriental sales representative with headquarters at Shanghai, China.

B. I. Graves

For over three and a half years he traveled through China, French Indio-China, Siam, the Philippine Islands, New Zealand and Australia, opening branch offices, making market surveys, appointing distributors and selling company products.

Upon his return to the United States, he was appointed assistant to the vice-president in charge of sales activities, and in 1929 became manager of fuel oil, export and cargo sales, and a member of the sales committee.

In November, 1929 he was appointed general sales manager in charge of all sales, which position he now holds, directing both domestic and foreign sales of all products.

Superheater Executive Dies

NEW YORK—Gilbert E. Ryder, vice-president of The Superheater Co., New York and Chicago, died of a heart attack May 17 at his home at Larchmount, N. Y. He was 52 years old.

Mr. Ryder had joined the company as service engineer in 1911 and was elected vice-president in charge of sales and service 10 years later.

World Oil Stabilization Program Hinges on Russian Acceptance

By Roger B. Stafford
N. P. N. Staff Writer

NEW YORK, May 24

BRITISH, Dutch and United States participants in the International Petroleum conference are in accord over plans to stabilize the world petroleum market and the plans are being presented to the Russian delegation.

This information, but no details of the plans, was revealed at the May 23 conference of the spokesmen of the conference with the press. The spokesmen are Charles E. Arnott, president of the Socony-Vacuum Corp., and J. A. Moffett, vice-president of Standard Oil Co. (N. J.). They meet press representatives daily in the Waldorf-Astoria hotel where the petroleum conference is being held.

Fundamentals of a definite proposition for stabilization were submitted to the three Russian participants in the conference May 22 and the reaction of the Russians is expected early this week. The stabilization objective is being approached from several angles, it was revealed, but no statement of those fundamentals is yet forthcoming and will not be until something concrete can be announced.

The conferees are proceeding deliberately. Neither Mr. Arnott nor Mr. Moffett would hazard a guess as to how long the conference might continue. After fundamentals are disposed of, details must be agreed on. All this may take another week, or longer.

The Russians have not attended all sessions. The other conferees include: J. B. Aug. Kessler, joint managing director of the Royal Dutch-Shell group; William Fraser, deputy chairman of Anglo-Persian Oil Co. and a director of the Iraq Petroleum Co.; Robert I. Watson, managing director of the Burmah Oil Co., and a director of the Shell Transport & Trading Co., and Heinrich van Riedermann, a director of the Standard of New Jersey. With Messrs. Arnott and Moffett they form a group which has met daily.

The Russian representatives are: Konstantin Riabovol, chairman of the board of Soyuzneftexport, the Soviet Oil Export Syndicate; Phillip Rabinovich, member of the Commissariat of Foreign Trade, and R. N. Fridman, head of the Russian Oil Products Co.

The primary problem of the conference is to find a method of disposing of the petroleum the Soviet Republics have to offer in the world market. It is understood a plan has been proposed for other world marketers to buy the Russian oil over a period of 10 years. The volume would be limited, probably, to some predetermined figure.

Russian exports of all oils reached 39,603,750 barrels in 1931, an increase of 10 per cent over the 1930 exports. Of the 1931 exports, 15,131,700 barrels was gasoline, 12,271,775 barrels fuel oil, including bunker oil, 5,131,700 barrels kerosine, and the remainder crude, lubricants, gas oil and minor products. The figures are those of the petroleum section, minerals division, Bureau of Foreign and Domestic Commerce.

It is understood that, under one plan proposed, Russia would not be permitted to export in any 12-month period more than its 1931 volume. Of course, that is a point yet to be worked out.

There is said to be a considerable difference of opinion about the price at which the Russian oil would be taken by any organization that would agree to absorb it. It has been suggested, it is said, that the price should conform to the realization of the Soviet on its oil exports in 1931. Another suggestion is that the price should be based on contracts the Soviet has had since 1927 with the Standard Oil Co. of New York and the Vacuum Oil Co. Where the American, British and Dutch conferees stand on the matter of price has not been revealed outside the conference room.

The Russians are described as business men willing to cooperate in any effort to get a better realization for their oil products. Belief is expressed here by men familiar with world market conditions and the need of the Soviet for gold to carry on the five-year plan, that the Soviet may be content with smaller volume of exports if the realization is greater than in the past. The Russians are silent so far as a public statement is concerned and the conference spokesmen have not intimated what demands the Russians may have made in the early negotiations.

The last statement of the Russians was a denial by Mr. Riabovol that the Soviet was responsible for low gasoline prices in the world market in 1931.

Regardless of who may be at fault in the matter of world prices, it is felt in export circles that European gasoline demoralized the world market in 1931. The influence of low European prices is still felt. One large American refining company is still quoting gasoline for export considerably below today's going market at the Gulf, solely to maintain connections abroad it has had a good many years. Gasoline is quoted delivered at London from Black Sea ports for less than the lowest American price at the Gulf.

Russians Consider Proposals

By Teletype

NEW YORK, May 24.—Following submittal of a plan to stabilize the world oil market by American, British and Dutch delegates to the international petroleum conference, the Russians withdrew to consider the effect proposals would have on them. Joint conferences will be resumed May 26.

Charles E. Arnott has not disclosed the reaction of the Russians to the proposals submitted at yesterday's joint conference.

News of Tax Evasion Fight

New England State Chairmen Meet

NEW YORK, May 20

CHAIRMEN of New England and New York state gasoline tax committees reported progress in their campaign to curb evasions and discussed future plans, at a meeting May 19 at American Petroleum Institute headquarters.

Among recommendations was that of opening tax reports for inspection or publication. Some states have statutory regulations against inspection of reports, and it was suggested that steps be taken in these states to make the reports public property.

Another recommendation was that of oil companies providing experienced oil account auditors when state officials request this assistance. Inexperience of some state employes in cases involving gasoline and other oil industry transactions was considered a difficulty in revealing evasion.

In some states efforts are being made to eliminate refunds of gasoline tax money because of the loss to the state, expense in handling accounts, and the opportunities for fraud involved, it was reported. The opinion was expressed that such a move would be helpful in curbing evasion.

Some state officials were reported as considering the final collection of taxes as satisfactory in admitted cases of evasion. The state chairmen felt that penalties should be imposed, and steps taken to prevent recurrence of the evasion tactics, even where final collection was made.

The state chairmen endorsed the plan put in effect this year by Maine, which starts the car license year March 1, as tending to do away with the laying up of cars Jan. 1 in view of paying the license at that time of the year.

New Hampshire has found that keeping the highways open in winter has paid, it was reported at the meeting. Highway patrolmen in the state have been active in checking and inspecting trucks coming into New Hampshire.

Representatives for the various states attending the meeting were: Maine, M. G. Perkins, Shell Eastern Petroleum Products; New Hampshire, J. E. Holden, Shell Eastern; New York, J. M. Martin, Standard Oil of New York; Vermont, B. O. Foster, Standard Oil of New York; Massachusetts, T. J. Spellman, Cities Service Refining Co.; Rhode Island, D. T. Colley, Atlantic Refining Co.; Connecticut, R. D. Lynch, Colonial Beacon Oil Co.

Others present were Fred Ewing, Standard Oil Co. of New York, chairman of the Northeastern Gasoline Tax Evasion Committee; and W. V. Hartman, Gulf Refining Co., Pittsburgh.

6 States Have Agitation To Increase Rates

NEW YORK, May 21.—Agitation for an increase in the gasoline tax rate has cropped out in six states, and in virtually all states there is further danger of diversion of tax funds, reports to the American Petroleum Institute indicate.

States where agitation for an increased rate has appeared are:

States	Present rate cents	Proposed rate cents
Michigan	3	4
Massachusetts	3	5
Connecticut	2	3
Mississippi	5½	6
New Jersey	3	5
Iowa	3	4

Increases in Massachusetts, Connecticut and New Jersey appear to be for welfare and relief fund purposes in towns and cities. The New Jersey increase apparently will be defeated as several state leaders have indicated to motorists that funds for relief will be raised by other means.

A desire to raise Iowa's rate to that of neighboring states apparently is back of the proposed 1-cent increase.

North Dakota voters defeated a proposal to increase the tax rate 1 cent. The vote March 15 was 106,770 to 69,181. The present tax is 3 cents.

A referendum vote on increasing the tax 1 cent in Maine will be held in September.

Rewards Posted for Tax Evasion Information

NEW YORK, May 21.—Rewards are offered in two states for information on gasoline tax evasion cases.

In Tennessee the state offers a $500 reward for information leading to the arrest and conviction, within 60 days, on charges of evading the 7-cent gasoline tax to the amount of $500 or more.

In Indiana the Gasoline Tax Evasion Committee offers a $500 reward for information leading to the conviction of persons seeking to bring about evasion of the gasoline tax by dumping gasoline into equipment owned and controlled by oil companies.

The 4-cent tax in Indiana is ordinarily paid by the retailer to the wholesaler, than to the state. It has been found that unscrupulous dealers and wholesalers have conspired to evade the tax through bootleg motor fuel.

The idea of a reward for information on tax evasion originated with the Standard Oil Co. of California.

Appoints Prosecutor

TULSA, May 21.—Appointment of W. H. Carpenter as special prosecutor to handle gasoline bootlegging cases in Kansas has been announced by Gov. Harry Woodring. The appointment was viewed by oil marketers in Kansas as the first really aggressive step by state officials to curb gasoline bootlegging.

Octane Ratings Leveling Out U. S. Survey Shows

CLEVELAND, May 23 — A LEVELING out of octane ratings of both competitive and premium gasolines is seen in the semi-annual motor gasoline survey of the U. S. Bureau of Mines conducted last August. An analysis of 319 samples collected in 19 areas is given by the bureau in a report just issued, which is the 24th on this subject.

Average octane ratings of both competitive and premium grades of gasoline were lower in August 1931, than in March, but were higher than in the previous August. The lower octane numbers in August than in March may be attributed partly to the lower volatility of the gasoline offered for sale.

In August, 1930, when the bureau made its first report on anti-knock ratings of gasolines, it found the regular grades to have an average of 59.2 octane number. In March, 1931, the octane number average was up to 62.5, while last August it was down to 60.8.

A factor in the lower octane number of regular gasolines is the fact that quite a number of samples of cut-price and third-grade gasolines were picked up by the bureau and included in the "competitive price" class. An analysis of the bureau figures shows 43 samples of third grade and cut price gasoline were examined. These had an average octane rating of 57.5. The 180 samples of regular price gasoline had an octane rating of 61.6, which was only a little below the average of samples in the March, 1931, survey and well above the August, 1930, survey.

Premium gasolines tested by the bureau in August, 1930, had an average of 73.7 octane number. In March, 1931, this had risen to 77 octane number. The current survey shows a drop in the average to 75.6 octane number.

One important reason for the drop in the average in both regular and premium grades is the fact that refiners are not selling as much of the very high octane gasoline, particularly above 85 octane number, in premium grades and above 70 octane number in competitive price grades. In the present survey only 4 per cent of competitive gasolines showed more than 70 octane number, as compared with 15.9 per cent in March, 1931. In the present survey 3.1 per cent of all premium samples had an octane rating above 85, as compared with 13.3 per cent the previous March.

Indications are that the octane race is slowing down and that standardization of grades is approaching, as refiners are blending back their higher octane cracked gasolines with the lower octane fuels to give a more uniform regular grade. They see it is not necessary to go quite as high on premium grades.

Fewer samples were found to be of exceedingly low octane rating last August. The report shows 1.6 per cent of all samples below 50 octane number, as compared with 1.9 per cent in the March, 1931, survey.

In the latest survey, 25.4 per cent of all samples tested between 50 and 59 octane number, as comparedwith 17.7 per cent in the March, 1931, survey. The latest survey found 43.3 per cent testing from 60 to 69 octane number, as compared with 39.7 per cent the previous March.

In the 60 to 69 octane number bracket were 22.2 per cent of all samples in the current survey and 30.8 per cent in the March, 1931 survey.

Highest octane ratings as before were found on the Pacific coast and the lowest at Cleveland, Chicago and St. Louis.

The bureau found more gum in gasoline last August. Excessive amounts were discovered in 6.5 per cent of all samples collected. Another 8.7 per cent were high enough to be doubtful while 84.7 per cent were within permissible limits. In the previous survey 3.2 per cent of the samples contained excessive amounts, 6.2 per cent were doubtful and 90.6 per cent were satisfactory.

Survey of Anti-Knock Qualities of Commercial Gasolines

(Comparison of Average Samples by Cities)

	Approximate Octane Numbers					
	Competitive Price			Premium Price		
City	August 1931	March 1931	August 1930	August 1931	March 1931	August 1930
Boston	65	64	64	75	80	76
New York	65	64	61	73	76	72
Washington	68	68	66	76	80	75
Pittsburgh	67	68	68	77	79	78
Cleveland	60	65	55	74	78	76
Atlanta	60	65	63	78	77	73
Chicago	59	63	55	74	69	72
New Orleans	60	66	62	76	74	74
St. Louis	55	56	55	76	74	71
Minn.-St. Paul	58	59	51	72	73	71
Omaha	60	54	55	70	73	68
Tulsa	60	60	58	73	76	74
Dallas	58	63	55	70	74	....
El Paso	57	60	56	74	74	74
Denver	55	59	55	69	....	65
Salt Lake City	58	64	60	77	78	74
Seattle	65	66	64	83	86	80
Los Angeles	63	62	58	81	81	....
San Francisco	64	62	64	82	83	80

TULSA, May 21.—All drilling and other operations formerly carried on by the Tulsa Oil Co. will be conducted by the Standard Oil Co. of Kansas under its own name, C. B. Wrightsman, president, has announced. Majority stock of the Tulsa company has been owned for some time by the Standard Charter of the former has been surrendered.

Stripper Well Question Alive Again

Okla. Martial Law Lifted

By Lawrence E. Smith
N. P. N. Staff Writer

(By Telegraph)

KANSAS CITY, May 23.—Distress stripper wells in southern Kansas were considered important enough by Harry F. Sinclair, chairman of the executive committee of the Sinclair Prairie Oil Co., to accept Gov. Woodring's invitation to discuss relief measures.

Mr. Sinclair, with W. S. Fitzpatrick, vice-chairman of the executive committee; Nelson K. Moody, president of the Sinclair-Prairie Marketing Co., and the Sinclair Prairie Gas Co.; Clark H. Kountz, chairman of the board of the Prairie Pipe Line Co., and G. T. Stanford, director of Consolidated Oil Corp., were in Topeka, May 23.

The conference lasted less than an hour and terminated in Mr. Sinclair's declaration that the Sinclair Prairie Marketing company would buy the oil in question. Thurman Hill, state public service commissioner, joined in the meeting.

The area in question has 6500 wells, making about 5500 barrels a day. Of this Stanolind will continue to buy 1600 barrels. The problem of getting a market for shut-in pools of western Kansas is still unsolved.

TULSA, May 21

PROMINENT developments in the crude oil situation in Oklahoma and Kansas this week were:

1—Proclamation by the acting governor of Oklahoma that martial law in the oil fields is lifted.

2—A strong declaration by the state proration committee of Oklahoma operators and the legal proration committee for stricter enforcement of the proration orders of the state corporation commission.

3—Withdrawal of the Standard Oil Co. of Indiana and subsidiaries as purchasers of crude oil in Kansas, to the extent of about 5000 barrels daily.

This third item promises more attention to come than the other two. For a considerable time, certain public officials of Kansas have held target practice, with the Indiana company occupying the role of target. Firing was resumed as soon as the news got out the company would curtail its purchases.

Although the greater part of the production the company has cut off is in the west central part of the state, flush areas, most of the controversy was expected to center on about the 2000 barrels daily from stripper wells in southern Kansas. It is the same oil that brought on an extensive argument early in 1931.

Originally, the Prarie Oil & Gas Co. bought this oil. Gathering lines of the Prairie Pipe Line Co. covered the several counties of the state's oldest development. The Prairie ceased buying Jan. 1, 1931, saying it stopped because the Indiana company had made its own arrangements and had ceased to patronize the Prairie. The Indiana company replied it was willing to do its share in buying but that it did not consider it was obligated to assume the entire burden.

There was considerable agitation among the producers affected and a movement to boycott Indiana filling stations was started in Chautauqua county.

Finally, it was settled by the Stanolind Pipe Line Co. laying, with the co-operation and help of the producers, considerable gathering line to connect with distress leases, in this manner providing market for 1600 barrels daily in Kansas and 4400 barrels in northeastern Oklahoma.

Another deal was made under which the Indiana company accepted stripper well oil from Kansas properties in tenders of 100,000 barrels each, the oil being gathered by the Prairie Pipe Line Co. and delivered at Wood River, Ill., refining point of the Standard of Indiana at the rate of 2000 barrels per day. The arrangement was renewed from time to time. The last tender was completed May 23 and was not renewed.

The Indiana company said it would continue to buy the 6000 barrels daily gathered in the stripper area of Oklahoma and Kansas by its own lines, but would not buy the 2000 barrels it has been taking through the Prairie lines. It said it had paid about $400,000 more for the oil gathered by the Prairie under the tender arrangement than it would have paid if the oil had been gathered by its own lines.

"Since the Prairie-Sinclair merger has now been concluded and the Prairie organization has available to it outlets to the Consolidated Oil Corp., refineries, which can easily use the stripper oil in question, Standard of Indiana feels that its responsibility is ended and that it is no longer justified in buying such costly oil," said its official statement. "Standard of Indiana would itself be very glad to sell stripper oil to anybody on the same basis as that upon which it has been purchasing oil from the Prairie organization for more than a year.

Other areas of Kansas where the Indiana company, through its Stanolind Crude Oil Purchasing Co., has withdrawn as a buyer, effective May 23, are pools served by loading racks in Russell, Rush, Stafford, Ellsworth counties. Five loading racks, through which the company has been taking 1500 barrels daily, are shut down. A reduction of about the same amount is being made in the Schurr and Sharpe pools, Rice county, and the Isern area, Barton county. The company has been buying 15 per cent of the potential production of the pools and will now take five per

cent. This oil is moved through trunk line of the Sinclair Prairie Pipe Line Co., under arrangement made prior to the merger of the Sinclair and Prairie companies.

In north Texas, Stanolind reduced its takings 1400 barrels daily. The oil was produced in the famous Waggoner "pasture," Wilbarger county. Other cuts in pipeline acceptances have been made here and there, in East Texas, in the Fish pool, Okla., and elsewhere.

One of the loading racks shut down in western Kansas, at Hudson, Stafford county, causes an Indiana subsidiary, Midwest Exploration Co., to shut in its production.

A number of wells in this general area will have to shut in until other arrangements are made. The El Dorado Refining Co. is a limited buyer in the Stratmann pool, Ellsworth county. The Derby Oil Co. buys a small amount. Standard Oil Co., of Kansas is reported planning to lay a line to the territory, from its present system in Greenwood county.

Lessened market demand for its products has made it necessary to reduce the amount of crude production it can handle at its refineries, is the way Indiana company officials explain their withdrawal.

Solely because Gov. "Alfalfa Bill" Murray went to Hudson, N. Y., to make a speech, martial law in the Oklahoma oil fields came to an end May 20. Lieut. Gov. Robert Burns, acting in the stead of the departed one, by executive proclamation said there was no need now, if there ever was, for martial law to enforce proration. He set out that the U. S. Supreme Court had upheld the Oklahoma law and the orders of the Corporation commission and he directed the adjutant general to demobilize the oil field army, which consisted of two officers on duty and one who was their commander.

Martial law, decreed Aug. 4, 1931, by Gov. Murray, has been more shadow than substance for several months. The two active officers have been paid by the Oklahoma City operators and it is said that an item of $350 per month to pay the salaries of the two is included in the budget which operators subscribe to pay the umpire and his staff and incidental costs of proration administration. One of the officers is such by appointment of the governor, in the same way that his cousin Cicero I. Murray is a lieutenant colonel. This one is Massena Murray, the governor's son, who is known as a lieutenant.

It was freely predicted the governor would re-establish martial law as soon as he returned from his eastern trip. The lieutenant governor has been something of an embarrassment to the governor. Each time the latter leaves the state in his race for the presidency, which has now become a spavined trot, the acting governor upsets something.

Prior reference was had to the meeting of the statewide proration committee and the legal proration committee, both functioning under the Mid-Continent Oil & Gas Association. They discussed the rumors that proration has not been uniformly administered and offered their services to the state in running down any violations of orders. They saw in the decision of the U. S. Supreme Court in the Champlin case a clearing of the path toward complete and impartial enforcement of the law and urged the state to bring all offenders to justice.

One of the companies the commission has accused of violating proration rules is the Wilcox Oil & Gas Co. This company, acting jointly with the St. Louis & San Francisco Railway, filed motion with the commission May 19 to set aside the commission orders, which forbid the Wilcox, Frisco railway, Magnolia Petroleum Co. and Titan Oil Co. to transport Wilcox company oil from the field. It is asserted the commission order seeks to control oil that has been reduced to possession and over which that body has no control.

The Wilcox company, it is said, had no hope that the commission would set aside its own order. The motion was merely to preserve the form of attack, which will be carried into the courts.

L. S. McGee Heads Oil Scouts Association

HOUSTON, May 19.—L. S. McGee of the Humble Oil & Refining Co.'s land and scouting department was elected president of the National Oil Scouts Association of America at its ninth annual convention in Houston, May 15-17. He succeeded John H. Langston of the Sun Oil Co., Dallas, who at one time or another has served the association in virtually every official capacity.

G. C. Francisco of the Sun Oil Co., at Houston, was elected chairman of the executive committee; J. W. Selby of the Shell Oil Corp.'s central division at Dallas was re-elected secretary-treasurer; Claud Strahan of the Atlantic Oil Producing Co., Shreveport, and J. L. Bullard of Shell Petroleum Corp., San Antonio, were named first and second vice-presidents, respectively.

John H. Langston, retiring president of the National Oil Scouts Association; L. S. McGee, new president; and S. W. Selby, secretary-treasurer

Legal Battle Near on Proration Of East Texas Field

FORT WORTH, May 23

ALTHOUGH an overwhelming majority of oil men and attorneys consider it "anti-climax" in the light of the United States Supreme Court decision again upholding authority of states to regulate production of their natural resources, legal guns were being moved into line for the three-judge Federal Court test of Texas' oil conservation laws opening May 30.

The approximately 20 suits filed in Federal Court attacking validity of Texas' oil and gas conservation laws and challenging reasonableness of the railroad commission's orders in the East Texas field have been combined and will be tried simultaneously.

Circuit Judge J. C. Hutcheson, Jr., of New Orleans and Judge Randolph Bryant of Sherman are expected to be two of the Federal jurists hearing the oil conservation case with the third judge yet to be selected.

Circuit Judge Hutcheson was a member of the tribunal that held the railroad commission had assumed power not delegated by the legislature under the old Texas conservation statute in the decision on the Macmillan et al case.

Since trial of the Macmillan case, which was last week admitted to review by the United States Supreme Court, the Texas legislature enacted a new oil and gas conservation law intended to give the railroad commission full authority to hold Texas' oil fields within production limits dictated by the most efficient methods and rates of withdrawal.

With only minor exceptions, the railroad commission has heard testimony—particularly from East Texas operators—that production in excess of 325,000 barrels daily would unquestionably be conducive to physical waste, the only issue the Texas statutes permit to be considered.

Depositions at the instance of attorneys for the approximately 20 complainant operators—mostly Louisiana and Arkansas oil men—were taken in Longview, May 15, and additional depositions were given at the instance of defendant counsel on May 19 and 20 at Austin.

Complete data on results of the flow test, which was made by one of the complainants for the purpose of obtaining information to be introduced as evidence at the trial, had not been tabulated. However, it was said that tubing head pressures in offset wells showed a decline ranging from 35 to 50 pounds per square inch.

This result on offset properties was said to be approximately what conservation proponents had anticipated and they held it was strengthening their case showing what might be expected throughout the field in the event the present restrictions are relieved.

A consensus of engineers reports recently compiled on the East Texas district reveal the average pressure decline is about 10 pounds a month under the present rate of withdrawal.

The majority report that average bottom hole pressure in the field is now less than 1300 pounds, about 350 pounds less than the average when the field was first discovered.

Estimates on the mean pressure required to flow East Texas wells varies from 700 to 900 pounds. Assuming that 900 pounds is the mean figure, an indicated decline of 400 pounds must occur before the flowing life of the field can be expected to end.

Roughly 150,000,000 barrels of oil has been withdrawn from the field, or an average of approximately 428,571 barrels per pound decline in bottom hole pressure. Projecting this rate, it would indicate that 171,428,400 barrels of flowable production remain in the field, raising entirely flush yield to an estimated figure of 321,428,400 barrels.

Most engineers place flush production at about a third of the ultimate yield. Assuming these figures are correct and will prove applicable to this Woodbine producing field—a rule that has been reasonably accurate in other Woodbine sand fields—ultimate recovery would be about 964,285,200 barrels.

E. M. Skeehan

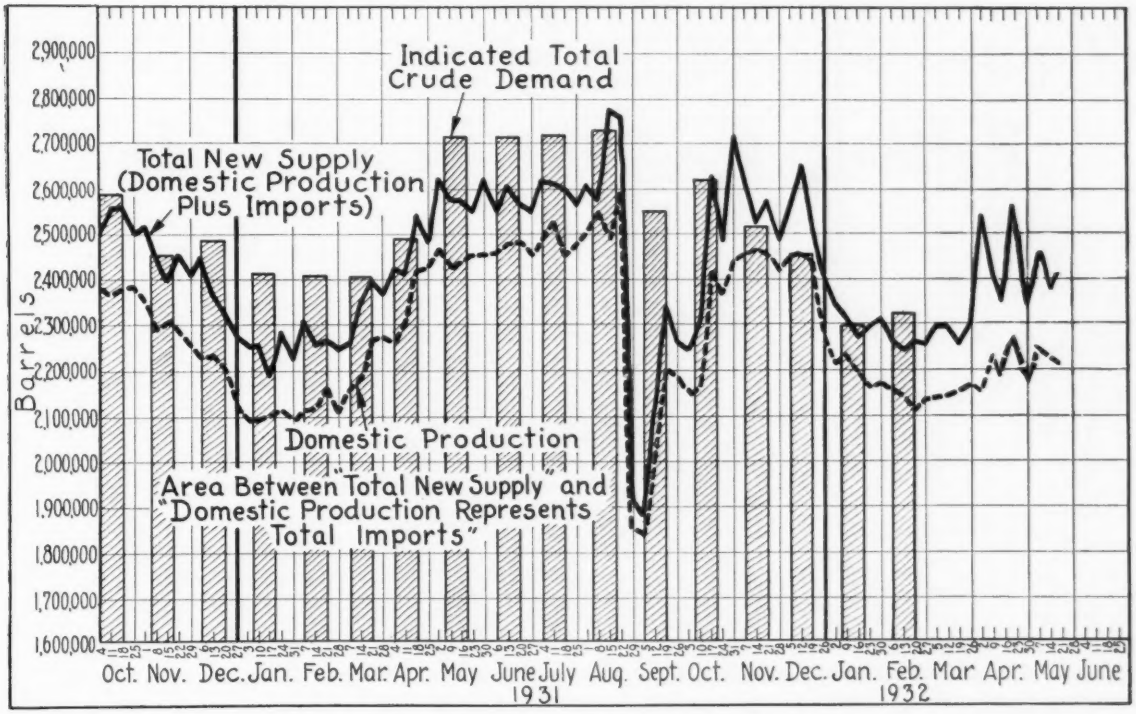
Skeehan New Vice-President of Barnsdall of Calif.

TULSA, May 21.—E. M. Skeehan, since 1919 the general auditor of the Barnsdall Corp., has been made vice-president of the Barnsdall Oil Co. of California and will soon leave Tulsa to assume his new duties.

Mr. Skeehan came to Tulsa from New York when general offices of the corporation were moved here. In addition to directing the auditing work, he has had considerable experience in taxation matters.

E. O. Bartlett, for many years vice-president and treasurer, and for some 40 years identified with Barnsdall enterprises, is retiring from the service of the company June 1. Mr. Bartlett expects to see whether some of his theories on golf are sound.

Review of Late Production News



This chart shows crude supply according to the American Petroleum Institute reports (solid line) in relation to indicated crude oil demand as taken from the Bureau of Mines monthly reports (shaded columns)

TOTAL new supply of crude increased 20,900 barrels daily average in the week ended May 21 according to the American Petroleum Institute. Domestic production dropped 12,000 barrels daily average to 2,225,350 barrels per day but imports rose 32,900 barrels to 180,300 barrels per day.

Oklahoma

THE past week saw failures chalked up against three tests drilled to prove up seismograph highs. In the SW SW NW of 2-14-3, Lincoln county Hilton Phillips et al found water in the Wilcox at 5080 feet. Sovereign Oil Co. in NE SE 3-15-5E, also in Lincoln county has 2000 feet of heavy black oil at 4537 feet. The Wilcox is believed dry and the oil coming from the Viola.

Another seismograph high failure is that drilled in the SW NW NE of 1-9-4 northwest of Earlsboro, Pottawatomie county, by Iron Mountain Oil Co. and Clara Oil & Gas Co., found the Wilcox dry at 4536 to 4539 feet.

East of Grey Horse, Osage county, Peters Petroleum Co. in CNW 24-24-7E has a well from what is believed to be the true Wilcox at 2750-92 feet which produced 186 barrels per hour.

Kansas

TWO new wells near Canton, McPherson county, indicate a new chat pool is being developed. In the Stoltenburg area of Ellsworth county Gypsy Oil Co. had a near-failure between the two 1600-barrel wells.

Texas

ANOTHER three mile extension, which if later substantiated by sustained production tests will be the second in two weeks, loomed in Duval county in Southwest Texas.

The indicated extension was Suttle et al No. 1 Bennett in the center of survey No. 44, three miles north of the nearest production in the Government Wells pool, which flowed oil over the crown block when tested through drill stem from a foot of sand at 2,328-29 feet.

Excepting an intensive lease play in north central Leon County and spudding of another wildcat test in Upshur county, East Texas developments of the week offered little of unusual interest.

Daily Average Production Important Districts, American Petroleum Institute Figures

(By Telegraph)

	Week Ended May 21 Barrels	Week Ended May 14 Barrels
Okla. City	99,550	116,250
Total Okla.	430,800	442,800
East Texas	338,100	332,900
Total Texas	878,550	868,900
California	503,500	519,500
East of Rockies	1,721,850	1,717,900
Total U. S.	2,225,350	2,237,400

California

AT PLAYA DEL REY, Union Oil Co. completed its Del Rey No. 4 for 1100 barrels of 22 gravity oil from 4968 feet in an area southeast of proven territory.

The Texas Co. has found Temblor shale at 900 feet in its wildcat at Carpenteria, Santa Barbara county, indicating that the Vaqueros which is productive at Elwood, may be found at about 4000 feet. The test is a result of exhaustive core drilling and geophysical work.

Motor Fuel Supply Control Rests With Refiners, Gasoline Men Decide

TULSA, May 21

IN ALL recent meetings of associations the field of economics has been the one most carefully cultivated by speakers. The eleventh annual meeting of the Natural Gasoline Association of America, held in Tulsa May 17-19, followed the general rule.

Nearly an entire day of the three was given to the reading and discussion of the paper by R. C. Alden, Phillips Petroleum Co., on "Economics of the Natural Gasoline Industry." Again and again, throughout the meeting, the discussion turned to the natural gasoline industry's paramount problem: How to market its products at a price which will assure the continuance of the business.

The trend of production, it developed in the discussion, is somewhat uncertain. It has declined substantially in the past two years. Shrinkage in demand has been a factor, proration another. In new oil fields a gasoline plant is no longer built with the same confidence in the ability to get gas as was the case before proration became the general rule of the oil industry. Typical of this is the East Texas field, which G. H. L. Kent, Humble Oil & Refining Co., described. (NATIONAL PETROLEUM NEWS, May 18, p. 30). In that area, the intermittent load to the gasoline plant, caused by flowing wells only a short time each day, has discouraged plant construction. This is true also of the Oklahoma City field and of some other of the newer oil pools.

Frank L. Chase, of the Lone Star Gas Co., said he believed that a certain amount of new construction will be demanded by the growing demand for conservation. State and federal officials, and a substantial part of the public will demand greater and more thorough control of oil and gas production and reduction of the vast wastage of gas.

The time is not far off, he believes, when the conservation movement will have taken on such definite form as to compel oil companies to make beneficial use of everything that comes out of a well. It must be recognized, he said, that natural gasoline will have to be produced, whether the oil operators want it or not.

W. D. Moorer of the Moorlane Co., vice-president of the Natural Gasoline Supply Men's Association

F. E. Rice, Phillips Petroleum Co., said that while it is true that proration penalizes the construction of gasoline plants, more production can be expected than at present from the gas companies that have laid trunk lines to large cities. All are operating far under capacity now, but their business will increase and as it grows more gasoline plant capacity will be required to treat the gas before it enters the consuming field.

While the curve of production has for some months been consistently down, Mr. Rice thought it would not fall much lower. Some small plants now operating at a loss will be shut down, there will be still further consolidation of plant activity, but the necessity of preventing waste will compel the building of other plants, almost regardless of the price realized for the product.

Back of the present effort to find a niche in the industry into which the natural gasoline division's production may be fitted happily, is a program of several years of research. The program is a continuing one. Vapor lock road testing is under way at the U. S. Bureau of Standards. It is being handled by the technical committee of the association and in conjunction with the Society of Automotive Engineers research into fuel line temperature data, is sponsored by the co-operative Fuel Research Steering Committee.

The research work conducted by Dr. George Granger Brown, of the University of Michigan, under auspices of the association, is well known throughout the oil industry.

Now, asks the oil man, what of it? Said R. C. Alden, at the outset of his paper on econmics:

"The more good things we learn about natural gasoline the less we are willing to ask for it. This is a distressing condition and denotes a complete incapacity to realize on opportunities knocking at our doors.

"It has been stated by Dr. Brown in reporting his research work for this association that the most difficult part of his task was to convince the members that their own products had merit. We have not yet been convinced. A few have gone part way but none has had the courage to go all the way. And with a product, economically cheaper than its competition, it seems that only the most colossal lack of foresight and planning would

permit that product to become a drug on the market.

"Fundamentally there are three economic flaws in the natural gasoline industry. These are: (1) Utter dependence on one market; (2) This single market places a double freight charge on the product in reaching the ultimate consumer; (3) Lack of storage facilities to provide for the seasonal demand for the product. To these might be added a fourth, namely, a complete failure in accounting in regard to the actual economic cost of manufacture and value of natural gasoline."

Alongside these assertions may be placed statements of the problem by J. A. LaFortune, vice-president of the Warren Petroleum Co., Tulsa, who spoke on "Natural Gasoline Markets and the New Grading System." He said:

". . . . Our industry is in a precarious position and it is going to take initiative, co-operation and a departure from our old methods to sell our product at a profit. During the past three years our production has declined 19 per cent, our finished product is superior in quality to that of former years but in spite of these two factors, the demand has diminished to the point where it is difficult to keep the price above the cost of production.

"In analyzing this inertia on the part of former buyers of natural gasoline, we find that there are three reasons responsible: Refinery gas recovery plants, decreased export business and the cracking process."

After some discussion of the desirable qualities of natural gasoline, Mr. LaFortune then said:

"It seems to me then that our immediate problem is to widen the sale of natural gasoline either as blending material or as a finished motor fuel. If you will check prices over the past few years, you will find that during the months of maximum gasoline consumption we have had a demand in line with the supply and usually we have been able to maintain favorable prices in relation to refinery quotations. This has been due to the fact that refiners require more natural gasoline to blend with their stored gasoline liquidated during the summer months.

G. M. Campbell, United Gas Public Service Co., vice-president of the natural gasoline association

"The winter months, however, have invariably brought reduced outlets and in the scramble to get rid of current production we have too often ruined our own market and that of our customers. I believe that this situation could be remedied.

"We know that we have a product which is particularly adaptable for use as motor fuel during the winter months. We can furnish a finished motor fuel which will give superior performance to car owners from the standpoint of ease in starting, acceleration and anti-knock properties. Heavy blends with refinery products will give the same performance."

Reverting to Mr. Alden's paper, he said that the economic place of motor natural gasoline depends entirely upon the way the refiner makes use of natural. "Fundamentally," he said, "the most economic use of natural gasoline is to distribute it in the entire motor fuel supply. However, if the natural gasoline industry is compelled to restrict its market to a more limited scope, motor natural gasoline is the only solution of the problem."

The Alden paper, which went into comparative costs of refinery gasoline and natural, antiknock ratings, transportation and storage and many other phases of the natural industry, has been printed by the association and is being given wide distribution. Among other points made, there is a suggested program of production, sales and storage for a gasoline plant having a production of 10,000 gallons per day.

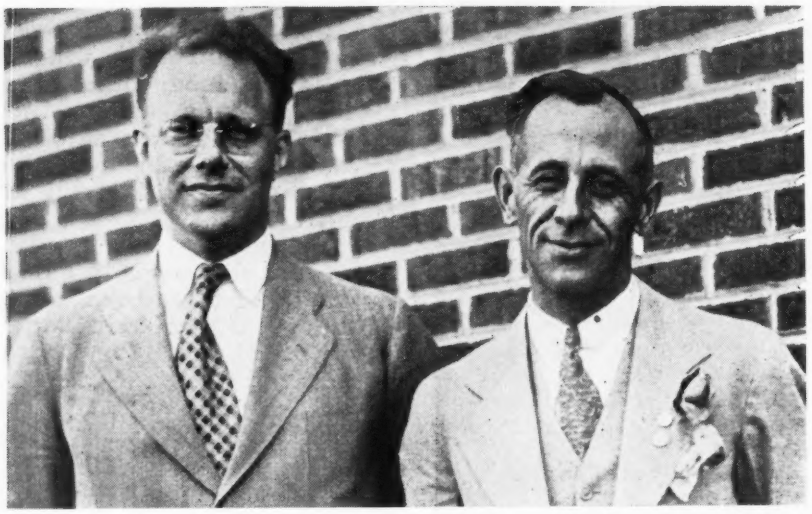
The program contemplates production and sales in balance through the first three months of the year, of high butane gasoline. In April, the program calls for halving of the high butane gasoline production and the making of a corresponding amount, less the butane removed, of butane-free gasoline and the beginning of storage. In May, June and July, no high butane gasoline is made; the storage program reaches its peak in July. For the last four months of the year, no butane free gasoline is made and the stored gasoline is liquidated by the end of October.

Further discussion of the economics of the trade was presented in the report of the sales managers' committee, S. B. Crooks, chairman. In part, it said:

". . . . In spite of marked declines in natural gasoline production amounting to 21 per cent in the industry in the United States and 23 per cent in the Mid-Continent area over the past year, and practically 40 per cent for the industry over the past two years, the demand has decreased even faster as evidenced by the fact that in addition to our prices being at record low levels, they also represent a smaller percentage of the U. S. motor price than ever before.

"The refiner is blaming the natural gasoline manufacturer for the low natural gasoline prices and the possible effect on the motor fuel market, but these prices are resulting from the refiner's failure to buy our products. The reason for these low prices has been the almost complete entry of the refiners into the natural gasoline business by vapor recovery plants but without stabilizing the products of these plants as the natural gasoline manufacturer has done, their vapor pressures ranging up to 30 pounds or more.

"As previously stated, the stress placed upon octane ratings of motor fuels further increased the production of refin-



Dr. George Granger Brown of the University of Michigan, in charge of research for the Natural Gasoline Association and S. S. Smith of Shell Petroleum Corp., re-elected president of the association

ery recovery plant gasoline. The refiner does not want to buy even the present reduced natural gasoline production, therefore, this product invades what he calls his marketing territory and often at prices under his own quotations.

"This brings us to the fundamentals of the situation stated without regard to any one branch of the industry. The motor fuel market is the market for all gasolines whether natural or refinery. Natural gasoline production can be controlled only by reduction of crude oil production and reduction of vapor pressure of the natural gasoline output. The refiner has full control of his production by reduction of crude runs, which should be passed back to the crude oil producer in the form of lessened market for his product.

"Proration or lessened production by the crude oil producer will reduce, or at least partially control natural gasoline production. Therefore, if the refiner desires to control the motor fuel markets, he should fractionate his own output, for the complete removal of propanes permanently, and for the present some of the butanes to control vapor pressure of his gasoline

"Then he should so control his crude runs that he can utilize the natural gasoline output, fractionated to the proper extent, so that the sum of these two products will be in step with the motor fuel demand. The less crude oil the refiner runs, the less natural gasoline he will have to absorb so long as proration or control of crude oil production exists.

"Therefore, the refiner is the logical control point for supply of the motor fuel market and he must operate so as to include the natural gasoline output in his supply of the motor fuel market, otherwise natural gasoline must compete directly for its share of the motor fuel market."

Meetings were well attended. Registration, while falling below last year, was much greater than the advance predictions, reaching nearly 375.

J. A. LaFortune, Warren Petroleum Co., who discussed natural gasoline markets and the new grading system before the natural gasoline convention

All officers were re-elected. They are Sydney S. Smith, Shell Petroleum Corp., president; G. M. Campbell, United Gas Public Service Co., O. C. Field, O. C. Field Gasoline Co. (California) and Emby Kaye, Skelly Oil Co., vice-presidents. The secretary-treasurer is elected by the board of directors subsequent to the annual meeting. Ray E. Miller, it is expected, will be reappointed for another year.

These companies were designated to name directors for a two-year term: Amerada Petroleum Corp., Columbian Gasoline Corp., Hanlon-Buchanan, Inc., The Henderson Co., Phillips Petroleum Co., Sinclair-Prairie Oil Co., Signal Oil & Gas Co., Skelly Oil Co., Standard Oil Co. of Calif., The Texas Co., United Gas Public Service Co., Warren Petroleum Co. and L. H. Wentz, oil division.

Representatives of the following held over for another year: Carbide & Carbon Chemicals Corp., Carter Oil Co., Continental Oil Co., Crosbie & Moran, Inc., Deep Rock Oil Corp., Empire Oil & Refining Co., O. C. Field Gasoline Corp., General Petroleum Corp., Indian Territory Illuminating Oil Co., Lone Star Gasoline Co., Roeser & Pendleton, Inc., Shell Petroleum Corp. and Texas Pacific Coal & Oil Co.

As has been the custom for several years, entertainment features and luncheon for the convention were supplied by the Natural Gasoline Supply Men's Association. A smoker, dance and three noonday meals were voted hearty approval by the gasoline men.

The supply men elected directors. They are: A. W. Burket, Alco Products, Inc.; M. H. Kotzebue, Tulsa Boiler & Machinery Co.; J. H. Satterwhite, Westcott & Greis; M. F. Waters, Hanlon-Waters, Inc.; George W. Probst, Clarke Brothers Engine Co.; A. V. B. Candler, National Supply Co.; W. D. Moorer, Moorlane Co.; B. W. Vinson, B. W. Vinson Co., Inc.

To succeed E. H. Triphaus, Taylor Instrument Co., who resigned as treasurer, the supply men elected Mr. Vinson. Officers are regularly elected the first of each year.

N.G.A.A. Engineers Study Design of Gasoline Plant Equipment

By Arch. L. Foster

N. P. N. STAFF WRITER

SCIENTIFIC design of natural gasoline equipment is practicable, with the aid of results of research reported at the convention of the Natural Gasoline Association in Tulsa. Exact equations based on mathematical developments and determined by experimental methods will replace the older, semi-empirical calculations formerly employed.

Economy in plant operation never dreamed of in the days of six-cent gasoline, may be easily attained by application of ingenuity, common sense, and energy to these problems and the enlistment of the active interest of the operators.

Compression type, vapor recovery systems appear to give lower manufacturing costs than absorption type; loss of octane rating of motor fuels in storage is frequently due to loss of high anti-knock, highly volatile constituents, which should be eliminated by stabilization before blending.

Development of wider and larger markets is the need of the solid carbon dioxide industry now, rather than expansion of plant capacity, which is now twice that required by existing demand.

TULSA, May 19

THE design of absorber and stripping columns and of fractionating equipment in general in the natural gasoline industry has been taken from the realm of empirical calculation, from "cut and try" methods and has become an exact science by recent developments in the experimental study of this major problem. Such appears to be the result of the work which is being carried out at the University of Michigan under the direction of Dr. George G. Brown, who has long directed the research program of the Natural Gasoline Association of America.

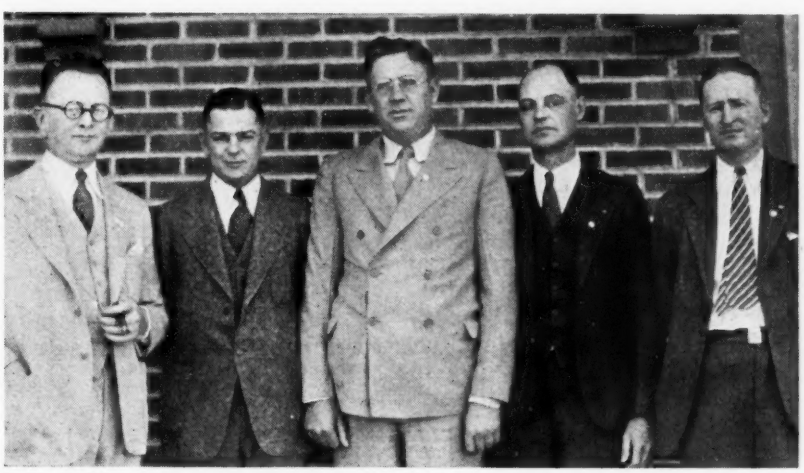
The eleventh annual convention of the association here was devoted chiefly to the discussion of two major subjects of prime importance to the industry—economics and technical developments which promote economy.

Dr. Brown's report before the convention on work which was begun more than a year ago at the university reduces the difficulty of intelligent design for fractionating and absorber equipment to exact mathematical calculations, the terms of which are based on data available in any well-managed gasoline or vapor recovery plant.

By the methods he has developed it is practicable to determine the number of equilibrium plates needed for efficiently absorbing hydrocarbons from a gas in any concentration, with any type of absorption oil and at customary pressures and temperatures now employed. Work of previous investigators, Cox, Kremser and others, has been continued far beyond the limits they attained. The mathematical consideration of the problem has been combined with experimental data obtained in the laboratory and plant. Theoretical principles have been supported and proved by research to fit them to concrete problems.

Operating economies have been promoted during the last year by the extremely low price of natural gasoline. Savings in costs by increasing the application of automatic devices to plant operation, by reducing the number of men required for operation, by applying known principles to the improvement of absorption efficiency; reduction of evaporation losses in storage, saving absorber oil to reduce the amount of make-up oil required, construction of new equipment from available material not in use, where previously new equipment was purchased—these and other economies were reported by Fred Shryock of Shell Petroleum Corp.

Greater over-all efficiency of the compression type vapor recovery-direct rectification refinery unit appears to be established Embye Kaye of Skelly Oil



Ray Miller, secretary of the Natural Gasoline Association; W. K. Warren, Warren Petroleum Co.; M. E. Mockley, Amerada Petroleum Corp.; D. K. Hutchcraft, Clark Brothers Engine Co.; and W. F. Fulton, United Gas Public Service Corp.

Co. believes. Earlier compression plants gave way to absorption type units, chiefly because of the drawbacks attending the handling of highly corrosive gases. More recent experience show that the fewer operations necessary with compression plants, the smaller number of workmen required, and the lower laboratory and other auxiliary expense make the compression type more profitable in most cases.

The present plant capacity for the production of solid carbon dioxide in this country is about twice the market requirements, according to H. Ross Campbell of Carbonic Products Inc., of Tulsa, manufacturers of this relatively new refrigerant. He believes that more effort should be expended in developing markets for the new product than in erecting additional production equipment. The latter course will soon place the infant industry in much the same position as the oil and automotive industries now find themselves, with consequent loss to all concerned.

Since in most cases potential markets are wide and varied, but the use of this material has not been adopted widely, education of those industries which may use it more profitably than those used now must precede expansion in manufacturing facilities if the growth of the industry is to remain unhampered by overproduction. The ice cream industry is so far the largest user of carbon dioxide, the author stated.

Calculation of Number of Absorber Plates Simplified

Because of the large errors which may be introduced into calculations for absorber design, by the assumption that vapor pressure is a measure of the escaping tendency of a vapor from a liquid, especially at the high pressures of many modern gasoline plants, Dr. Brown undertook this study by utilizing the fugacity of fluids as the basis. Fugacity has been defined as the escaping tendency of a fluid, Dr. G. N. Lewis having proposed this property as the measure of the escaping tendency of a component from a phase.

Since the entire subject has been treated exhaustively by the author in a series of articles in NATIONAL PETROLEUM NEWS, (beginning in the issue of May 4), no detailed discussion will be given here.

Opinion expressed by competent engineers present at the meeting who had studied the work indicates that the results have done more to promote scientific design for practical purposes than any work which has been available to date.

Stenches Used for Bottled Gas for Safety

As a safety warning to users of bottled gas, various materials have been studied which would indicate escaping gas to the consumer before dangerous concentrations are attained in buildings. T. W. Legatski of Phillips Petroleum Co. reported some of the results achieved, and the rigid requirements for a suitable odor material for the purpose. Among the substances now being used Calodorant (a trade name), pyridine, ethyl mercaptan and ethyl sulfide. Investigation of other materials for this purpose is going on, and it will require long use of the different compounds in to determine their relative fitness for this purpose.

Personal Initiative Solves Plant Economies

Construction of a "portable machine shop", designed by a mechanic in charge of equipment, enabled the Shell Corp. gasoline department to re-face engine heads on the jobs with plant personnel, re-bore crank boxes and accomplish other maintenance problems at nominal cost, the sum total of which formed a major item of expense in former years.

The general problem of reducing plant maintenance was handled by the author's organization by the arrangement of group meetings at each plant, in which different members of the staff were gradually encouraged to study the particular problem in which each was most interested. One man studied packings and their lubrication, which has resulted in saving in packing materials and the determination of suitable lubricants for each individual.

Another operator determined the properties of mineral seal oil used in the plants, and his findings resulted in the erection of a continuous redistillation unit for providing absorber oil of better properties, and a saving of $300 per month in oil make-up.

Loss of Octane Rating in Storage

Study of a large number of samples of Ethyl gasolines from various sources indicated that a severe loss of octane rating below the minimum is likely attributable to inefficient stabilization of the vapor recovery naphtha from the refiners unit, or from the use of poor natural gasoline for blending, in the opinion of Embye Kaye. Out of 76 samples studied, one half were still within the required minimum; the remainder were below the standard, requiring from 0.25 cc. to 2 cc. to bring them to the standard. The author stated that proper stabilization of light naphthas, whether recovery gasoline or natural gasoline, would prevent this loss in sufficient measure, thus eliminating one source of complaints from consumers as to Ethyl gasoline quality. He assumed that all these fuels were standard rating when shipped from the refinery.

The need for further work on vapor lock has become apparent during the last year, with the result that the technical committee recently arranged with the Bureau of Standards to begin a new project on the subject. The work will be under the direction of Dr. O. C. Bridgeman of that bureau, as a part of the work of the Co-operative Fuel Research Steering Committee. A fundamental research program at the University of Tulsa has been considered but under present conditions this project has been deferred. For the wider dissemination of information on blending a chart is being prepared by the committee, which will be available in a short time.

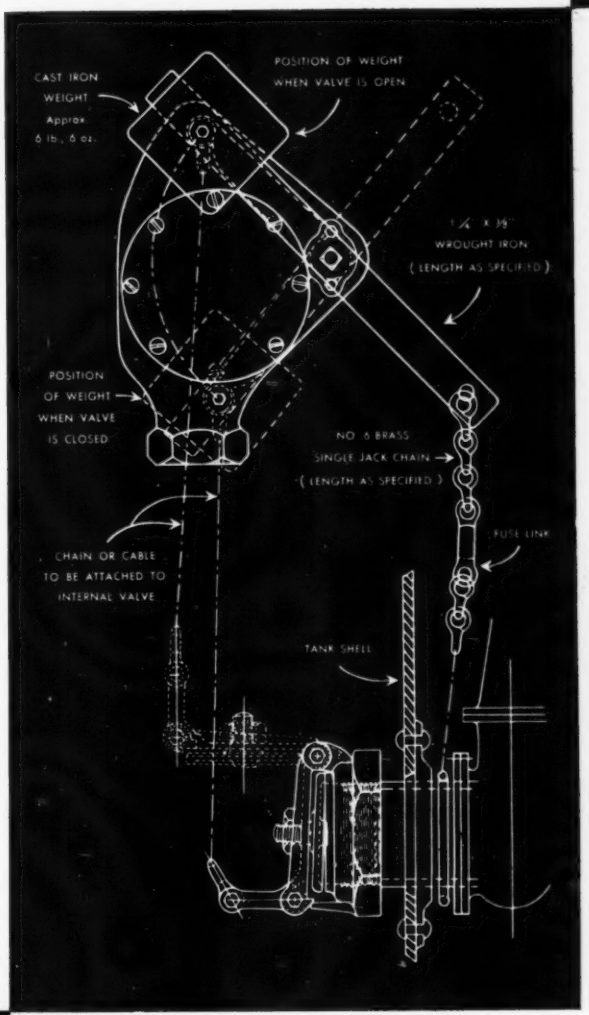
The gas contract committee of the association has adopted a resolution, to the attention of the board of directors, that the association adopt the revised schedule of royalty payment which has been in use for some time by the industry generally. No action has been taken by the board on the proposal.

STOP LOSSES FROM FIRE

Read how this **NEW** Lifting Device operates self-closing Internal Valve

THE blueprint at the right, which shows how the new Wheaton Gas-tight Overhead Lifting Device operates the Wheaton Internal Valve, introduces a simple method of protecting bulk storage from fire.

The Wheaton Internal Valve—a leak-proof, self-closing safety valve—is installed through the wall of the tank. The Wheaton Gas-tight Overhead Lifting Device — made especially for tanks having no flange or tap connection in the side—has a gas-tight housing which is attached to the top of the tank by a 1½-inch nipple. A spindle extends outside of the housing. Fitted on this spindle, within the housing, is the lever to which is attached the chain or cable from the valve gate. On the end of this spindle, outside the housing, is attached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NO. 6 BRASS SINGLE JACK CHAIN (LENGTH AS SPECIFIED)
FUSE LINK
CHAIN OR CABLE TO BE ATTACHED TO INTERNAL VALVE
TANK SHELL

the arm with weight on one end and cable on the other end. The cable, with fusible link inserted, is anchored to the pipe outside the tank. In case of fire near the tank, the fusible link melts, permitting the weight to go down and turn the inside lever, which permits the valve gate to close.

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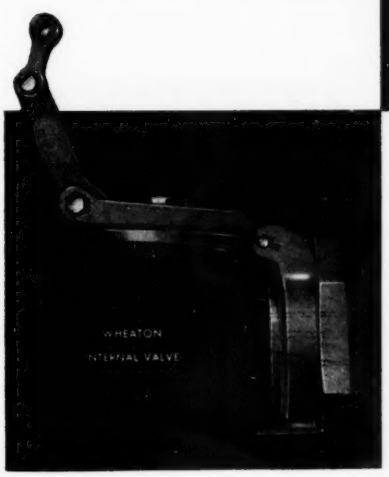

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FAUCETS - VALVES - JOINTS - COUPLINGS - FILLERS - NOZZLES - FITTINGS

VAPOR RECOVERY *and* GASOLINE FRACTIONATION

By
George Granger Brown*
and
Mott Souders, Jr.*

•

Part 3

Simplified Calculations for Fractionating Columns

Methods of calculating the composition of products, reflux ratios and number of equilibrium plates; the rectifying column, the stripping column and the complete continuous column.

ALTHOUGH satisfactory graphical methods for computing the number of equilibrium plates required in a fractionating column for binary mixtures have been available for some time[1], the first satisfactory method applicable to multiple component mixtures has just been published[2].

Nomenclature

That part of the column above the feed plate is indicated as the rectifying column and that part below the feed plate as the stripping column. The plates are numbered from the top plate of the rectifying column down to the bottom plate of the stripping column. A "General" plate as denoted by n is in the rectifying column and by *n* is in the stripping column. The top plate in the rectifying column will be numbered 1, and the hypothetical plate above the top plate is 1—1 or 0. Subscripts indicate the plate of origin of a quantity as y_n means the mol fraction of the component under consideration rising from plate n, and x_{n-1} represents the mol fraction of the component under consideration in the liquid from plate n—1. Other symbols are as follows.

D=mols of distillate withdrawn as product per unit of time.

R=mols of reflux returned to column.

V=mols of vapor.

O=mols of liquid overflow.

F=mols of feed.

B=mols of bottoms.

x=mol fraction of any particular component in liquid.

y=mol fraction of any particular component in vapor.

K=equilibrium constant, y/x under equilibrium conditions.

The Rectifying Column

By material balances around the top of the column and above the feed plate

$$V_n = O_{n-1} + D \qquad (1)$$

$$y_n V_n = x_{n-1} O_{n-1} + x_D D \qquad (2)$$

$$y_n = \frac{V_n - D}{V_n} x_{n-1} + \frac{D}{V_n} x_D \qquad (3)$$

If the number of mols of vapor V ascending the column is constant from plate to plate, the above equation representing operating conditions in the rectifying column is a straight line having a slope of $\frac{V-D}{D}$ or $\frac{O}{V}$ and an intercept $\frac{Dx_D}{V}$. The slope $\frac{V-D}{V}$ of the operating line is identical for all components, but the intercept, $\frac{D}{V}x_D$, depends directly upon the mol fraction in the distillate of the component under consideration. Therefore all operating lines for a particular column will have the same slope but the intercept on the y-axis will vary for each component directly as the mol fraction of that component in the distillate.

The operating line as determined in this manner is depended upon for computing the composition of the vapor rising from any plates when the composition of the liquid on the plate above is known or vice versa.

The composition of the liquid on a plate is then determined from the composition of the vapor under equilibrium conditions by means of the equilibrium constant, K.

$$y_n = Kx_n$$

This equation also represents a straight line of slope K passing through the origin. For all practical purposes a column may be assumed to be at constant pressure insofar as any change in the value of K is concerned, and the equilibrium conditions of each component may be represented on a plot of y as a function of x by a series of straight lines passing through the origin, each line representing equilibrium conditions for a particular temperature at the total pressure in the column. Such equilibrium plots for propane, butane and pentane are

[1]W. L. McCabe and E. W. Thiele—Ind. Eng. Chem. Vol. 17, No. 6, p. 605, June, 1925.

[2]Symposium on Chem. Eng. Processes in the Oil Industry, Ind. Eng. Chem. May, 1932.

*University of Michigan, Ann Arbor.

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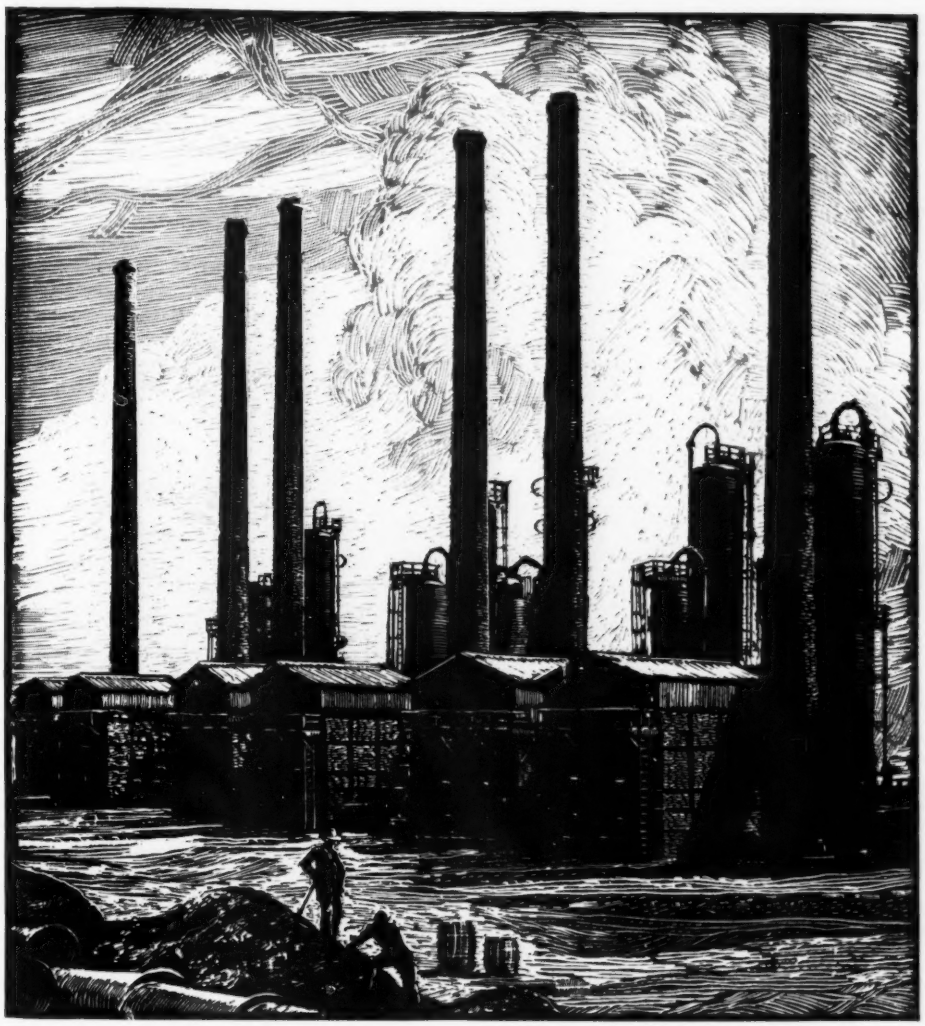

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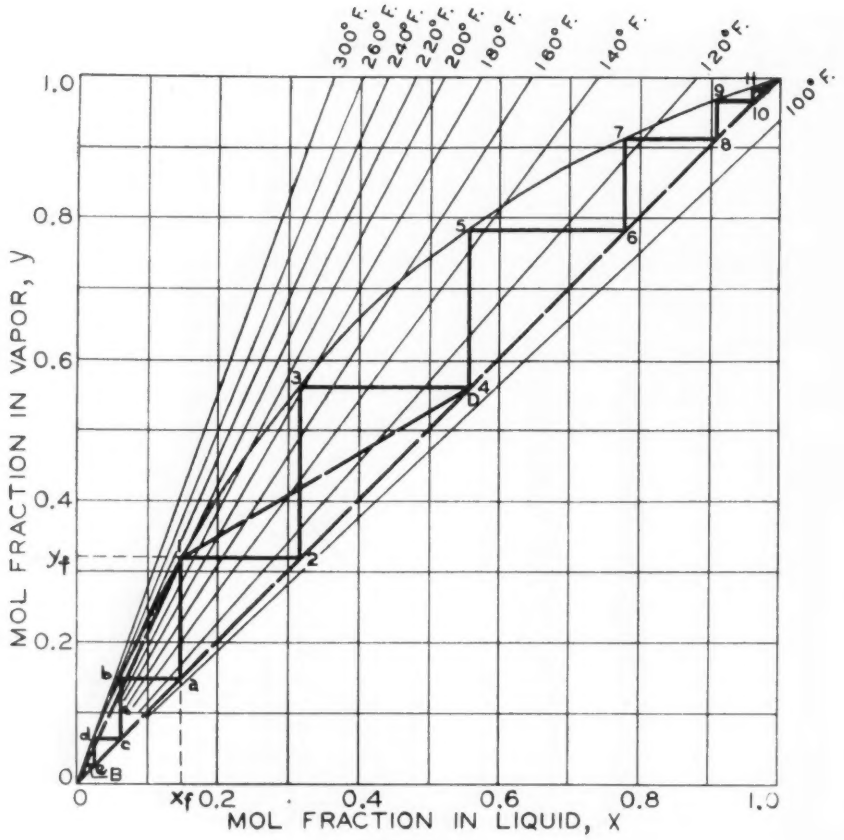

Fig. 1—Fractionation diagram for propane

shown respectively in Figures 1, 2, and 3.

The Stripping Column

In a similar manner and with the same assumptions a material balance around the bottom of the column and below the feed plate gives the following equations

$$O_{n-1} = V_n + B \qquad (4)$$

$$y_n = \frac{O}{V} x_{n-1} - \frac{B}{V} x_B \qquad (5)$$

which is the equation of a straight line with slope of $\frac{O}{V}$ or $\frac{O}{O-B}$ and an intercept on the y-axis of $-\frac{B}{V} x_B$; or on the x-axis of $\frac{B}{O} . x_B$.

As in the case of the rectifying column the slope of the operating lines for all components are identical but the intercepts depend directly upon the mol fraction of the component in the bottoms from the stripping column.

The Complete Continuous Column

The operating line for the rectifying column must intersect the operating line of the stripping column within the limits of composition on the feed plate. Assuming equal molal latent heat for the various compounds, the following equations are obtained by means of material balances.

$$F_V y_f + Vy = Vy \qquad (6)$$

$$F_L x_f + Ox = Ox \qquad (7)$$

in which y and x are the ordinates of the point of intersection of the two operating lines.

Adding (6) and (7)

$$Vy - Vy = Ox + F_V y_f + F_L x_f$$

$$y = \frac{O-O}{V-V} x + \frac{F_V y_f}{V-V} + \frac{F_L}{V-V} x_f \qquad (8)$$

$$O - O = -F_L$$

$$V - V = F_V$$

$$y = \frac{-F_L}{F_V} x + y_f + \frac{F_L}{F_V} x_f$$

If the feed is all liquid $F_V = O$ and $X = x_f$, indicating that the intersection of the two operating lines falls on the ordinate $x = x_f$. Similarly if the feed is all vapor the intersection falls on the abscissa $y = y_f$. For feed of part liquid and part vapor the intersection falls on a line of slope $-\frac{F_L}{F_V}$ passing through y_f, x_f.

From these considerations it is clear that the intersection of the two operating lines on the chart for any one component can be located only as falling on a straight line. In order to determine the exact location of this intersection for any component it is necessary to determine or assume the mol fraction of the component in the overhead distillate or in the bottoms and the ratio of liquid overflow to vapor $\left(\frac{O}{V}\right)$ in the corresponding part of the column. This method may be used in determining the location of the intersection for one component only. In the case of a binary mixture this offers an adequate solution to the problem, but in the presence of more than two components the assumption of the mol fraction of one component in the distillate and the reflux ratio in the rectifying column demands a unique solution for the mol fraction of the other components in the overhead distillate and for the number of equilibrium plates. The rectifying column is essentially a special limited case of the gas absorber in which the composition of the reflux is dependent upon the composition of the distillate. It is therefore clear that the composition of butane or propane may not be assumed for the reflux in the rectifying column although the composition of the lean absorption oil is an independent variable in the gas absorption column.

Although it is theoretically possible to determine the composition of the distillate and reflux from a rectifying column by cut and try methods after the composition of one component and the reflux ratio have been assumed, such a process appears to demand infinite patience and infinite time.

Similar considerations applied to the stripping column below the feed plate indicate

that the only additional choice that may be made to aid in the design of this part of the column is the mol fraction of a single and different component in the bottom. Since the assumption of the mol fraction of pentane in the distillate and the reflux ratio in the rectifying column completely determines the conditions of the rectifying column including the yield of distillate, it is clear that all operating conditions for the stripping column are fixed except the number of equilibrium plates. The assumption of the mol fraction of one component in the bottoms is sufficient to fix the number of equilibrium plates in the stripping column. The same compound may not be used to express the composition of the distillate and the composition of the bottoms because this relationship is dependent upon the proportion of distillate to feed which has already been fixed by the assumption of the reflux ratio and mol fraction of the compound in the distillate.

There are, however, two cases in which rational, definite solutions can be readily obtained. In the case of infinite reflux in which $\frac{O}{V}$ equals unity and D and B are each equal to zero, the operating lines for the rectifying and stripping columns are each represented by a straight line passing through the origin with a slope of unity. In the case of infinite plates or minimum reflux the intersection of the operating line must occur at a point representing equilibrium conditions within the limits of composition in the feed plate. This definitely fixes the intersection of the two operating lines for each component at the point $y=y_f$ and $x=x_f$.

In each of these limiting conditions the correct location of the operating line can be readily determined for each component and a rational satisfactory solution obtained by the graphical methods indicated in Figures 1, 2 and 3. In these figures a feed composed of 15 per cent propane, 30 per cent butane and 55 per cent pentane is to be fractionated into an overhead product containing 0.15 per cent of pentane and a bottom product containing 0.9 per cent of propane.

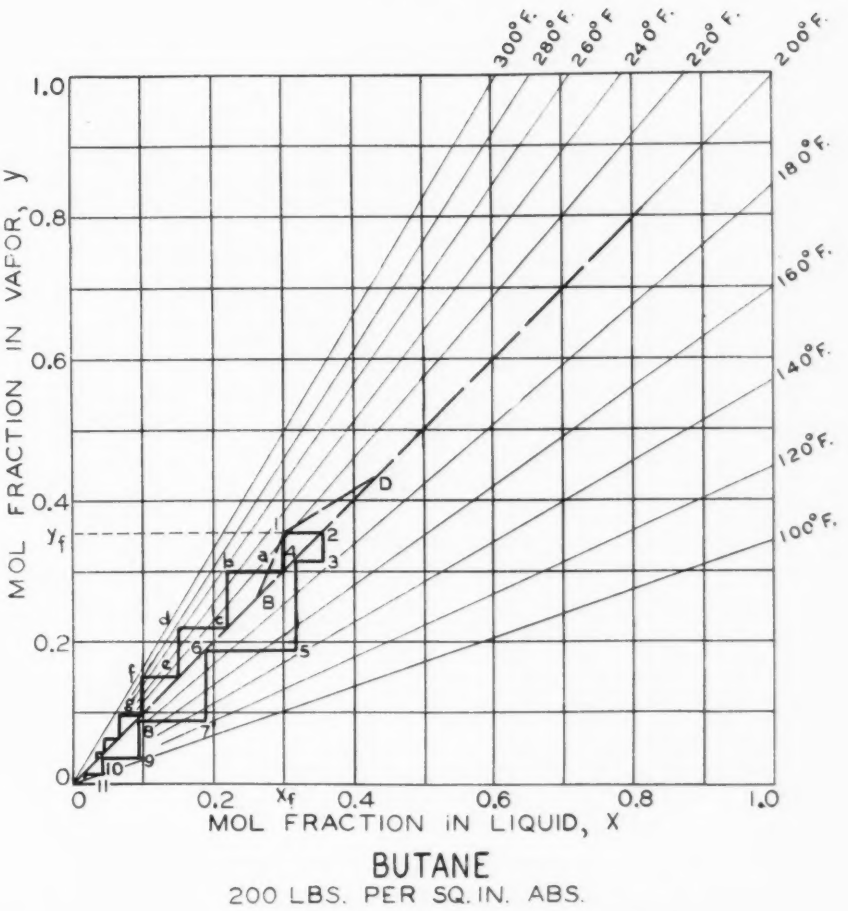

Fig. 2—Fractionation diagram for butane

Infinite Reflux or Minimum Plates

Under the condition of infinite reflux when no product is withdrawn from the column the operating lines are represented by a 45 degree line passing through the origin which is drawn as a dashed line in each of Figures 1, 2 and 3. The composition of the feed is known and is indicated as the mol fraction in the liquid feed as x_f in each figure. In this case we shall assume that the feed is supplied as a liquid at the boiling point under the pressure existing in the column (200 lbs. per sq. in. abs.)

The composition of the liquid feed represents the composition of the liquid overflow from the feed plate. For this reason the liquid feed should enter the column at the same point as the overflow leaves the feed plate. The vapors rising from the feed plate are in equilibrium with the liquid feed because only equilibrium plates are considered in this development.

The vapor in equilibrium with the liquid feed is obtained by determining the values for y_f so that the summation of y_f for all components is equal to unity and the point $y_f x_f$ occurs at the

Table 1

Plate Comparison Under Conditions of Infinite Reflux

Plate No.	Temperature °F.	Vapor y Liquid x	Mol Per Cent Propane	Butane	Pentane
f—5	108.7	y	98.8	1.2	0.022
f—4	112.3	y	96.2	3.61	0.15
f—3	123	y	91.0	8.4	0.6
f—2	145	y	78.0	19.0	3.1
f—1	185	y	56.0	31.5	12.5
f	223	y	32.0	35.5	32.5
		x	15.0	30.0	55.0
f+1	255	x	6.1	22.0	72.0
f+2	271	x	2.3	15.0	82.5
f+3	279	x	0.9	9.8	89.5
f+4	285	x	0.35	6.3	93.0

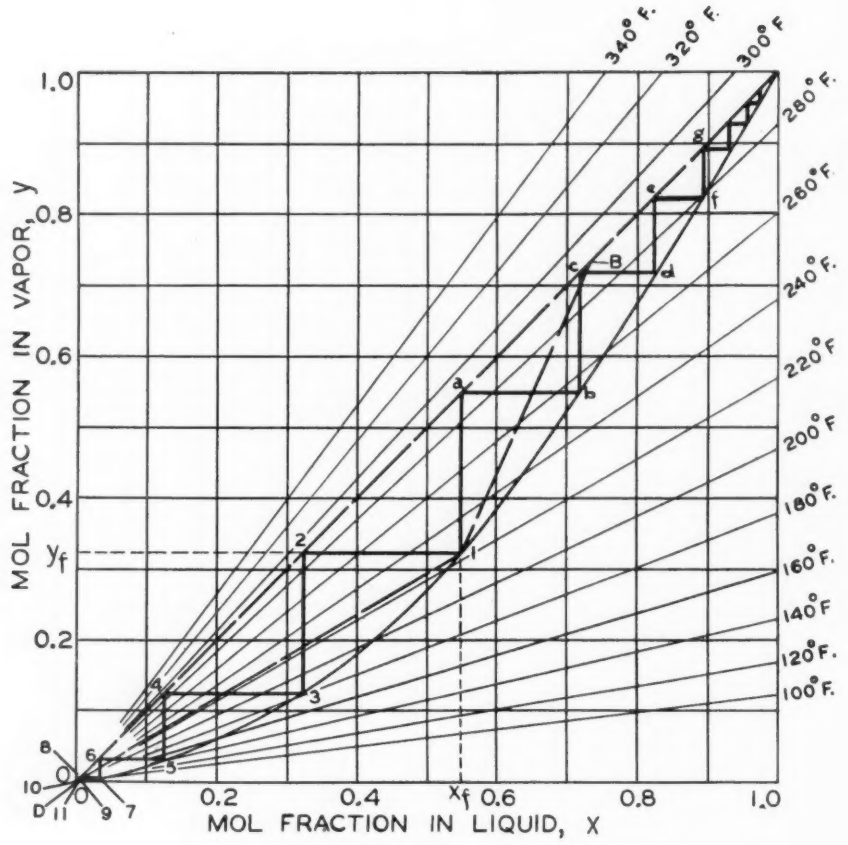

Fig. 3—Fractionation diagram for pentane

same temperature on all equilibrium charts. These points are indicated as (1) in Figures 1, 2 and 3 and the corresponding temperatures and values of y_f are given in Table 1.

The next step is to determine the composition of the liquid on the plate above (x_{f-1}) by means of a material balance. This is done by extending y_f until it intersects the operating line at point 2. In the special case of infinite reflux where there is no net transfer of material from plate to plate the composition of the liquid is the same as that of the vapor rising from the plate below, and y_f equals x_{f-1} as indicated by the diagonal line having a slope of unity.

The composition of the vapor rising from this plate, f—1, is then determined by extending the line x_{f-1} until the equilibrium point indicated as (3) is determined in the same manner as point (1).

In this manner the composition of the liquid and vapor leaving each equilibrium plate above the feed plate, and the temperature on each equilibrium plate can be readily determined with the results as indicated in Table 1.

This process is continued to point (11) indicating the vapor rising from plate f-4 at a temperature of about 112.5°F. and containing 96.2 per cent of propane, 3.61 per cent of butane and 0.15 per cent of pentane. Therefore four equilibrium plates will be required above the feed plate in a rectifying column operating at infinite reflux under the chosen conditions.

In a similar manner the plates in the stripping column below the feed plate may be determined by starting from point (1) representing the composition of liquid leaving the feed plate and making a material balance by extending x_f to the intersection with the operating line at point (a). Then continuing in a manner similar to that prescribed for the rectifying column, point (b) indicates the equilibrium between vapor and liquid on the plate below the feed plate corresponding to a temperature of 255°F. as indicated in Table 1. This procedure is continued to point (f) indicating the composition of liquid in the material overflowing from the bottom plate.

The number of equilibrium plates required in the column is equal to the number of horizontal lines in the steps between the vapor leaving the top of the column and the liquid leaving the bottom. In this case 8 equilibrium plates are required, 4 above and 3 below the feed plate.

Minimum Reflux or Infinite Plates

In the case of infinite plates the intersection of the operating line occurs at $y_f x_f$ indicated by point (1) in the Figures. Under conditions of minimum reflux the maximum quantities of distillate and bottoms are removed from the column and the composition of the reflux may or may not be the same as that of the overhead product. The method of handling these different cases is the same for complex mixtures as for binary mixtures as described by McCabe and Thiele.

In this case the assumption is made that the reflux returned to the top of the column is of the same composition as the overhead product, and that the vapor supplied below the bottom plate is of the same composition as the bottoms removed from the column. Furthermore, the liquid reflux is returned at its boiling point and the bottom vapors are saturated. This means that the bottom product is removed from the liquid overflow from the bottom plate and that heat is supplied to the bottom of the column by an exchanger or kettle below the bottom plate. A material balance around this kettle indicates that the vapors leaving the kettle must be the same in quantity and composition as the liquid entering.

Under these conditions the composition of the liquid reflux supplied to the top of the column is the same as that of the overhead product and the composition of the vapor rising to the bottom plate is the same as that of the liquid bottoms removed from the bottom plate. Then the operating line will intersect the 45° line where x equals the mol fraction of the component in the overhead

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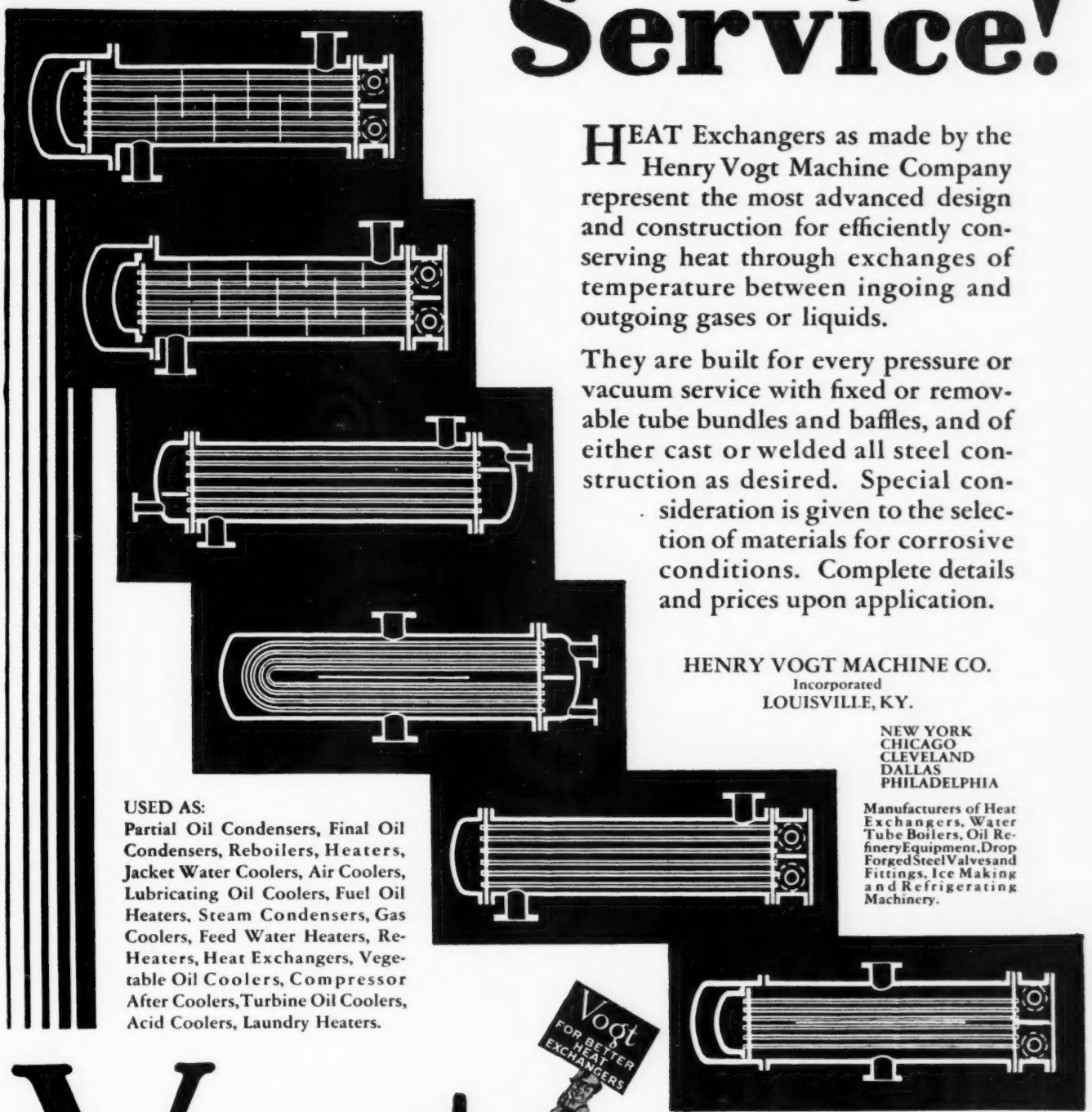

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product, or in the bottom product as the case may be.

Since it is desired to produce a bottom product containing 0.9 per cent of propane, the operating line for the stripping column is a straight line drawn from point (1) to point (B) in Figure 1, the ordinates of point (B) being 0.9.

As soon as this one operating line for the stripping column has been determined corresponding operating lines for butane and pentane may be drawn in Figures 2 and 3 passing through point (1) and with the same slope as the operating line in Figure 1. These lines are drawn for butane and pentane as 1-B in Figures 2 and 3. By this means the composition of the bottom product removed from the column when operating under minimum reflux is determined as 0.9 per cent propane, 26 per cent butane, 73.1 per cent pentane.

In a similar manner the operating line for the rectifying column 2-D is drawn in Figure 3 for pentane so that the line intersects the 45° line at the point (d) where the ordinate is 0.15, this being the desired percentage of pentane in the overhead product. The intersection of the operating lines for the rectifying column with the 45° line indicates the composition of the overhead product as 56 per cent of propane, 43.85 per cent butane, and 0.15 per cent pentane.

The temperatures and compositions of these products obtained in the case of minimum reflux are given in Table 2.

Material Balances

In the case of binary mixtures it is possible to obtain a material balance under conditions of infinite reflux. This is not the case when dealing with more than two components for the reason that the most volatile component concentrates in the top of the column and the least volatile component concentrates in the bottom, accumulating the components of intermediate volatility in the middle part of the column. This is indicated by inspection of Table 1 which shows only 3.6 per cent of butane in the overhead distillate and 9.8 per cent of butane in the bottoms while the feed contains 30 per cent of butane. Obviously such operating conditions do not permit the removal of any distillate or bottoms and do not represent any practical method of operation.

By use of Equation 9 the number of mols of bottom product per mol of feed may be estimated by making a material balance for each component. In the case of infinite reflux these computations lead to impossible values in the case of butane as indicated in Table 3.

The conditions of operation corresponding to minimum reflux or infinite number of plates are based upon the removal of a finite quantity of overhead and bottoms product. For this reason a material balance may be made for these operating conditions and in the case under consideration indicates that 75 per cent of the feed is recovered as a bottom product and 25 per cent as overhead.

Graphical Design on the Basis Of One Component

It will be noticed in Figure 1 and 3 that a curved line passing through points 11, 9, 7, 5, 3, 1, G, D, f, has been drawn which indicates the equilibrium composition of propane and of pentane respectively in the liquid and vapor throughout the column. It has been found in numerous calculations that this equilibrium curve determined on the basis of infinite reflux also approximately represents the equilibrium conditions for the same component when operating at any reflux ratio greater than minimum. It is, therefore, possible to design the rectifying column for the pentane content desired in the overhead distillate and for any assumed reflux ratio greater than minimum. Similarly it would be possible to design the stripping column for the desired propane content in the bottoms if we could get correctly the reflux ratio in the bottom part of the column.

Frequently it is possible to estimate a reasonably satisfactory material balance and to design the rectifying and stripping columns in this manner treating the complex mixture substantially as a binary mixture composed of pentane and another component in the rectifying column and composed of propane and another component in the stripping column.

Although of considerable practical value for estimating the number of equilibrium plates required in a fractionating column, this method is not adequate for predicting the composition of the product to be obtained.

Application of The Absorption and Stripping Factors

Since the rectifying column may be regarded as an absorbing column for pentane, and the stripping column as a stripper for propane, it seems that the application of the absorption and stripping factors, which have proven so successful in the design of absorbers and strippers might be applied to the design of the absorption and stripping sections of a fractionating column.

In order to demonstrate the application of this method the fractionation of the same feed in to an overhead product containing 0.15 per cent of pentane and a bottom product containing 0.9 per cent of propane as outlined above will again be considered.

In the design of the gas absorber it was assumed that the oil had substantially constant temperature throughout the column. If an equivalent average temperature throughout the rectifying column of a natural gasoline fractionator can be determined from calculations made for infinite and minimum reflux, the equivalent absorption factor can be determined for other reflux ratios and the

Table 2

Compositions Under Conditions of Minimum Reflux

Plate	Temperature °F.		Mol Per Cent Propane	Butane	Pentane
Hypothetical Plate Above Top Plate	140	y_0	75	25	0.035
Top Plate	159	y_1	56	43.85	0.15
Feed Plate	223	y_f	32	35.5	32.5
Bottom Plate	265	x_f	15	30	55
Hypothetical Plate Below Bottom Plate	273	x_n	0.9	26	73.1
		x_{n+1}	0.34	17.5	82.2

The appetite of the automobile engine has changed but that doesn't worry Dubbs refiners

Today's engine wants anti-knock gasoline

The Dubbs cracking process makes anti-knock gasoline from crude oil or any fraction, and at low cost

The Dubbs refiner can sell his gasoline at a premium He can't keep up with the demand

Can you sell straight-run at a premium?

Can you sell it at all?

Universal Oil Products Co
Chicago Illinois

Dubbs Cracking Process
Owner and Licensor

number of equilibrium plates determined in the same manner as for the gas absorber. Although the absorption factor in the design of gas absorbers is rather sensitive to temperature, the high reflux ratios common to natural gasoline rectifying columns increases the absorption factor to such an extent that it is much less sensitive to changes in temperature.

Rectifying Column As An Absorber of Pentane

From the previous discussion it was found that with infinite reflux four equilibrium plates were required above the feed plate to accomplish the desired absorption of pentane. Using Equation 13 and Figure 1 of Part 2 of this series[3] with the values given in Table 1 for infinite reflux the following results are obtained:

$$\frac{y_{n+1}-y_1}{y_{n+1}-y_0}=\frac{y_f-y_{f-4}}{y_f-y_{f-5}}=\frac{0.325-0.0015}{0.325-0.00022}=0.996$$

From Figure 1 of previous paper

$$A=3.63=\frac{O}{V}\frac{1}{K}$$

$$K=0.2755$$

This value for K corresponds to a temperature of 153° F. which is slightly greater than the average (149° F.) between the top and bottom plates (f-4 and f-1) of the absorber or a little less than the average (167° F.) between the top and feed plates.

With minimum reflux or infinite plates,

$$\frac{y_{n+1}-y_1}{y_{n+1}-y_0}=\frac{y_f-y_1}{y_f-y_0}=\frac{.325-.0015}{.325-.00035}=0.9966$$

$$A=0.9966$$

$$K=\frac{O}{V}\frac{1}{A}=0.58\,\frac{1}{0.9966}=0.582$$

This value for K corresponds to a temperature of 222° F. which is substantially the same as that of the feed plate.

In estimating the average effective temperature for determining the equilibrium constant A satisfactory results are obtained if the average effective temperature for determining the value of K is taken as a straight line function of $\frac{O}{V}$.

The average temperature between the top and bottom plates of the absorber, in this case 149° F. is considered the effective temperature when $\frac{O}{V}=1$, and the temperature of the feed plate is considered the effective temperature for minimum reflux. Using this relationship a mean effective temperature of 166° is estimated for a reflux ratio of 9 to 1 corresponding to a value of 0.9 for $\frac{O}{V}$.

Referring to the values for the equilibrium constant as given in the first paper in this series K is taken as 0.32. These conditions correspond to an absorption factor of 2.88. For this value of the absorption factor about 4.5 equilibrium plates are required to obtain the desired pentane content in the overhead product.

Before treating the stripping column as a stripper for propane it is necessary to make a material balance in order to determine the value for $\frac{O}{V}$ in the stripping column. This may be done by regarding the rectifying column as a stripping column for propane and determining the mol fraction of propane in the overhead distillate corresponding to the same value for $\frac{O}{V}$ and for the same number of equilibrium plates as used in determining the proper conditions for pentane. Since the rectifying column is not a stripping column the stripping factor for the propane is much lower than might be expected for an efficient stripping column operating in the same temperature range.

Rectifying Column As a Propane Stripper

By making computations for the stripping factor of propane in the same manner as has been done for the absorption factor for pentane, the following results are obtained:

For infinite reflux and 4 plates

$$\frac{x_e-x_n}{x_e-x_{n+1}}=\frac{x_D-x_{f-1}}{x_D-x_f}=\frac{0.962-0.32}{0.962-0.15}=0.79$$

$$S=0.98$$

$$K=0.98$$

This value for K corresponds to a temperature of about 108° F. The top temperature is 112° F.

Similarly for minimum reflux and infinite plates,

K — 0.58 corresponding to 55° F.

Assuming the same straight line relationship between $\frac{O}{V}$ and effective stripping temperature, K is taken as 0.9 corresponding to a temperature of 96° F. Since $\frac{O}{V}$ is 0.9 the stripping factor S equals 1. For 4.5 plates as has already been determined on the basis of pentane

$$\frac{x_e-x_n}{x_e-x_{n+1}}=0.815=\frac{x_D-x_{f-1}}{x_D-x_f}$$

By equation (2)

$$x_{f-1}=\frac{V}{O}y_f-\frac{D}{O}x_D$$

Substituting known values

$$x_{f-1}=\frac{10}{9}0.32-\frac{1}{9}x_D$$

$$0.815\,(x_D-0.15)=x_D+\frac{1}{9}x_D-\frac{3.2}{9}$$

$$x_D=0.785$$

By this means the percentage of propane in the overhead distillate has been determined and we have for the composition of the overhead product 78.5 per cent propane, 21.35 per cent butane, .15 per cent pentane.

With these data and the known propane content of the bottom the value for the ratio $\frac{O}{V}$ in the stripping column below the feed plate may be determined and this part of the column designed in the following manner.

Stripping Column as Propane Stripper

By the same method as outlined above, the stripping column operating with infinite reflux and three equilibrium plates is found to have a strip-

Table 3

Material Balance

Based on	Mols of Bottom Product per Mol of Feed: Infinite Reflux	Minimum Reflux
Propane	0.85	0.75
Butane	4.26	0.77
Pentane	0.61	0.75

[3] National Petroleum News, May 11, 1932, pp. 27-34.

ping factor of 2.55 corresponding to

$$K=2.55$$

This value for K corresponds to an effective temperature of 280° in the stripping column. This temperature is in very close agreement with the temperature of the bottom plate (f+3) indicated in Table 1 as having a temperature of 279° F.

When operating with infinite plates and minimum reflux the stripping factor S is found to have the value of 0.962 and

$$K=2.181$$

which corresponds to an average effective temperature of about 232° F.

In the stripping column for stripping propane the average effective temperature to be used in determining the equilibrium constant assumes the rational value usually somewhere between the feed temperature and the temperature of the bottom plate. Present indications are that either the average effective K or the average effective temperature for each component may be considered a straight line function of $\frac{O}{V}$ between infinite and minimum reflux.

By use of this method the average effective temperature for 9 to 1 reflux ratio is estimated as 246° F. which indicates that

$$K=2.28$$

By means of a material balance between the propane in the feed, in the top and in the bottom, $\frac{V}{O}$ is found to have a value of 0.69. Under these conditions

$$\frac{x_e-x_n}{x_e-x_{n+1}}=\frac{15-0.9}{15-0.34}=0.962$$

$$S=\frac{KV}{O}=2.28 \times 0.69=1.57$$

Table 4

Results of Fractionating Column Design By Absorption Factor Method

Reflux Ratio 9 to 1 at Top, Operating at 200 lbs. per sq. in. Absolute

		Mol Per Cent		
	Total Mols	Propane	Butane	Pentane
Feed	100	15	30	55
Distillate	18.2	78.5	21.35	0.15
Bottoms	81.8	0.9	31.9	67.2

and 5.2 equilibrium plates are required in the stripping column below the feed plate.

Therefore the fractionating column should be supplied with 11 equilibrium plates, 4.5 in the rectifying column, 1 for the feed plate, and 5.2 in the stripping column, making a total of 10.7 equilibrium plates. If the actual plates are 40 per cent efficient, the column should include 27 actual plates.

A complete material balance including the composition of the products is given in Table 4.

I. C. C. Approves 12 Per Cent Cut In C. F. A. Petroleum Rates

WASHINGTON, May 20 AGAINST the protest of Mid-Continent refiners, marketers and blenders in other parts of the country, the Interstate Commerce Commission yesterday allowed the railroads to make a cut of about 12 per cent in their petroleum products freight rates in Central Freight Association territory. That is the part of the country east of the Mississippi and Illinois Rivers, west of a line drawn through Buffalo and Pittsburgh and the northern third of West Virginia and Kentucky.

It was no act of grace or concession to shippers and receivers of such products. They made the cut in an effort to retain on their rails some of the traffic that for years moved over them because other facilities were not at hand. The truck and the pipeline have forced the rates down from 32.5 per cent of the first class rates to 29 per cent of them.

A rate, which, on Wednesday was 18.2 cents for a 100-mile haul became 16 cents on Thursday. The reduction figures out about 12 per cent. It came notwithstanding the thought the freight rates regulating body had when it began the so-called Hoch-Smith resolution freight rate investigations that higher charges could be put on petroleum and its products so that rates on products of agriculture could be put down.

"If the carriers are to haul any of this petroleum traffic it is necessary that prompt action be taken regardless of relationship of rates so as to retain some of the rail movement, if possible," said the railroads when they answered a Mid-Continent protest which was to the effect that the reduction would disrupt the relationship, as between the Mid-Continent and territory east of the Mississippi. The Mid-Continent people asked for a suspension of the tariffs proposing the cut pending investigation of its lawfulness.

"The continuation of the 32.5 per cent of first class on gasoline, refined oil (kerosine) or refined oil distillates (furnace oil) will eliminate some of the most valuable long haul traffic the carriers have," said the railroads "and will localize the distribution thus increasing the short haul traffic on which the carriers have intense competition by motor truck, pipeline and water transportation (on the Ohio River and the Great Lakes) so that if the rail carriers are to hold a portion of the traffic to the rails it must be at less than 32.5 per cent of first class."

The Mid-Continent interests that tried to have the reductions held up were Deep Rock Oil Corp.; Anderson-Prichard Oil Corp.; Wilcox Oil & Gas Co.; Bell Oil & Gas Co.; Petroleum Refractionating Corp.; Altitude Petroleum Co.; Cosden Oil Co.; Kanotex Refining Co.; Wirt Franklin Petroleum Corp. and Derby Oil Co.

The Preston Oil Co. Columbus, O., another of the protestants that may be taken as typifying others, made the point that natural gasoline, casinghead gasoline and naphtha had not been included in the cuts and that therefore the new rates would be discriminatory against them and against gasolines produced by blending. It made the point that the new tariffs would therefore present the spectacle of having higher rates on such raw materials as natural and casinghead gasolines than the finished product.

Cleveland Low Price Outlets Sell Many Oils For S. A .E. 40

CLEVELAND

WHEN Mr. John Motorist scales down his automobile oil costs by purchasing low price oil in Cleveland he is fairly certain of getting the type of oil asked for, but he is gambling on the possibility of getting the grade of oil his car requires.

Mr. Motorist also will find that these sales places, tire shops and vacant lot "squatters," in the main have a limited stock of oil. Signs on windows, or along the curb, indicate that two or more types of oil are for sale. But the entire stock will consist usually of two to four oil tanks or 55-gallon drums. One place visited had eight containers and another six containers.

This restriction of stock, as compared to the battery of containers found in oil company service stations, is evident also in the fact that the grade of oil asked for is that recommended by one of the largest automobile manufacturers, yet in only two out of nine low-priced outlets was this grade obtained.

Samples of low price motor oils being sold in Cleveland were obtained by a representative of NATIONAL PETROLEUM NEWS. A laboratory analysis was made, and the results, with additional information concerning the purchase, are published in the accompanying table. A similar survey was made around Detroit, and the results published in the April 27 issue, page 19.

The N. P. N. representative entered the oil store and asked the type of oil being sold at a certain price. Most places had signs advertising oil at 12½ and 17½ cents a quart. Then the sales person was handed a quart glass container and asked to "give me a quart of S. A. E. 40 oil" at the specified price. In several instances the sales person stumbled on the "S. A. E. 40" requirement, but was given no assistance as to whether his light, medium, or heavy oil, was wanted.

The first stop was at a tire store. The proprietor had two 5-gallon containers back of the counter, both holding "100 per cent pure Pennsylvania" oil, claimed to have been purchased from a Cleveland oil jobber. One sold at 12½ and the other at 17½ cents a quart. Both were claimed to be "summer heavy oil." The sample of the 12½ cent oil, turned out to be S. A. E. 20.

Sample No. 2 was purchased at a "squatter" location, having a tin shack with four tanks, and draining facilities at the rear. A chart was on the wall and a Pennsylvania Grade Crude Oil Association permit number 36 was on the curb sign. The sales person said two types were sold, a paraffin base oil at 12½ cents and the Pennsylvania oil at 17½ cents. In both types S. A. E. 30 aud 40 were stocked. The sales person said he knew little about the specifications. He had attended one sales meeting, and he was to receive a copy of the specifications of his oils.

There are a number of "squatter" locations in Cleveland of this company, supplied by a Detroit jobber. The attendant, where sample 2 was purchased, said there are about 15 in Cleveland.

Number 3 was purchased in a regular store building, the store being classified as an oil and accessory store. Two types of oil were offered, and there were eight 55-gallon drums in the store. The sales person claimed that his 15 cent oil, called "Pure Penn" was Pennsylvania oil. The analysis indicates a Mid-Continent oil. The S. A. E. 40 requirement made it necessary for the sales person to ask someone in the basement what it was. "Medium," came the reply from below. And the sample was in the lower S. A. E. 30 bracket. The sales person claimed this sample was equivalent to oil sold at 30 cents by service stations.

Sample 4 was obtained at a "squatter" location, the building in its day of glory having been evidently a real estate office. Two drums were on the porch, and there were several

Samples of Low Price Oils Purchased in Cleveland

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10
Gravity	26.0	27.5	25.5	21.8	24.1	26.0	27.0	24.5	20.6	27.8
Pour	20	35	20	5	10	15	15	0	5	25
Flash	410	440	425	400	395	415	445	445	395	450
Fire	465	495	480	455	450	465	500	505	445	505
Viscos. at 210° F.	56	68	58	64	57	55	73	58	54	72
Viscos. at 100° F.	377	541	430	730	447	380	680	491	505	655
Color	7	7	6	8	5-6	7-8	6-7	6	5-6	7
S.A.E. Number	20	30	30—	30—	30—	20	40	30—	30—	40
Probable Source of Crude	Penna	Penna	M C	Gulf Coast	M C	M C	Penna	M C	Gulf Coast	Penna
Source claimed	Penna	Penna	Penna	Western	Penna	Western	Penna		Western	Penna
Retail price (qt.)	12½c	17½c	15c	12½c	17½c	10c	17½c	15c	10c	12½c

S. A. E. 40 oil was asked for at all places.

indoors. The sample purchased was claimed to be "western" oil. This was defined as "Oklahoma" oil by the attendant, and he said his medium grade was S. A. E. 40.

Oil in sample 5 was purchased at an oil store, in a vacant store building, and the source was claimed to be the same as sample 1. The operator had several five-gallon containers on the floor, and two 55-gallon drums. An old counter was littered with small electric motor parts.

The S. A. E. 40 inquiry completely floundered the operator. He hesitated, then pumped oil from both drums and asked which oil looked like what was wanted. The operator was told the make of automobile. Then he pumped from a drum, saying that this oil was used in the summer by drivers of this type of auto. The oil was in the lower 30 bracket.

No. 6 was claimed to be a "western" oil. It was 10 cents a quart. The source of supply was claimed to be the same as for sample 2. There were three tanks in this tire shop selling unbranded oil, and two tanks of a company having locked tanks and selling a branded Pennsylvania oil.

A tire shop sold sample 7. This place had two tanks. One had no Pennsylvania label and contained 17½-cent-a-quart oil. The other had a Pennsylvania label, no permit number, and had 12½ cent oil. There was a chart of S. A. E. numbers on the wall. The sales person claimed the oil was purchased from a source having a nationally advertised Pennsylvania oil.

The sales person hesitated on giving "S. A. E. 40 oil." He asked no questions, evidently remembering that there was only one high boy in the shop for each type. The analysis shows that this was the first S. A. E. 40 oil purchased.

Number 8 was purchased at a major oil company service station. On driving to the gasoline pump, the N. P. N. representative handed the attendant the quart container and asked for "a quart of 15-cent oil, S. A. E. 40."

Another 10-cent oil is represented by sample 9. This was a parking lot shack, advertising three types of oil, with six tanks to hold the stock. The sales person was indignant when asked if his 10 cent oil was crankcase drainings. He claimed it was "western" oil. Several high boys were painted the colors, and carried the name of a large marketing company that has passed into the hands of a major oil company.

There is a real sporting proposition back of sample 10. This is claimed to be a 100 per cent Pennsylvania oil, sold at three locations in Cleveland for 12½ cents a quart—and a $100 reward to anyone proving that it is not 100 per cent pure Pennsylvania.

The location where sample 10 was purchased was a tin shack on a vacant lot. Only one type is offered, and there are three tanks and one drum in the shack. The attendant furnishes a copy of the specifications, which tally closely with the laboratory analysis.

Of the ten samples purchased, only numbers 7 and 10 were of the correct S. A. E. number. Sales persons at both places claimed their oils were purchased from the same compounder.

Small Marketers Increase Share In Missouri "Gas" Gallonage

CLEVELAND, May 19

SMALL companies made headway in the distribution of gasoline in Missouri in 1931 over the integrated companies, the Missouri tax returns show. In 1931 small companies had 37.41 per cent of the gallonage in the state compared with 31.90 per cent in 1930.

Nine integrated companies had 62.59 per cent of the 1931

Comparison of Missouri Gasoline Gallonage in 1931 and 1930

From State Tax Reports

	1931 Gallons	1930 Gallons	Change in 1931	Change Per cent in 1931	Per cent of Each Company's Gallonage to State's Total 1931	1930
Standard Oil Co., Indiana	82,570,658	105,912,122	—23,341,464	—22.04	17.61	23.94
Phillips Petroleum Co.	51,863,745	41,527,942	+10,335,803	+24.89	11.06	9.39
Sinclair Refining Co.	40,075,161	47,790,161	—7,715,000	—16.14	8.55	10.80
Shell Petroleum Corp.	31,669,768	25,718,493	+5,951,275	+23.14	6.75	5.81
Lubrite Refining Co.	12,500,891	7,926,990	+4,573,901	+57.70	2.67	1.79
The Texas Co.	16,321,780	17,687,078	—1,365,298	—7.72	3.48	4.00
Continental Oil Co.	9,557,355	8,377,512	+1,179,843	+14.08	2.04	1.89
National Refining Co.	7,205,929	6,008,257	+1,197,672	+19.93	1.54	1.36
Cities Service Oil Co.	7,637,864	6,830,719	+807,145	+11.82	1.63	1.54
Skelly Oil Company	7,891,184	7,860,387	+30,797	+0.39	1.68	1.78
Barnsdall Refining Co.	6,045,972	5,964,916	+81,056	+1.36	1.29	1.35
Tide Water Oil Sales Corp.	4,845,884	5,659,625	—813,741	—14.38	1.03	1.28
White Eagle Oil Corp.	4,458,331	3,632,993	+825,338	+22.72	.95	0.82
Mid-Continent Petroleum Corp.	5,759,378	5,754,130	+5,248	+0.09	1.23	1.30
Marathon Oil Co.	1,976,226	2,013,433	—37,207	—1.85	0.42	0.46
Deep Rock Oil Corp.	572,910	48,383	+524,527	+1084.11	0.12	0.01
Wilcox Oil & Gas Co.	1,183,853	1,304,227	—120,374	—9.23	0.25	0.29
Cosden Oil Co.	876,197	279,700	+596,497	+214.02	0.19	0.06
Johnson Oil Refining Co.	492,717	955,261	—462,544	—48.44	0.10	0.23
19 integrated companies	293,505,803	301,252,329	—7,746,526	—2.57	62.59	68.10
Grand Total — All Companies	468,945,590	442,319,648	+26,625,942	+6.02	100.00	100.00
All small companies	175,439,787	141,067,319	+34,372,468	+24.37	37.41	31.90

gallonage and 68.10 per cent of the 1930 gallonage.

The small companies increased their gallonage in 1931 24.37 per cent over their 1930 gallonage while the increase in the state for the year was only 6.02 per cent. The 19 integrated companies fell off 2.57 per cent.

The state's gallonage gain was more than 26,000,000 gallons. The small companies took all the state's increase for the year and almost 8,000,000 gallons besides at the expense of six integrated companies.

The accompanying table shows a comparison of the integrated companies, gallonages in 1931 and 1930 and the grouped small companies.

Refiner Develops Lubrication Unit For West Coast Dealers

LOS ANGELES

RIO Grande Oil Co. has developed a complete automotive lubrication unit for installation at dealer service stations. The unit, known as the "Lube-Master", can be installed beside the lift and be connected with the air line for dispensing lubricants used in large volume.

A flat steel base holds the lubricant tanks. Attached to the base is a rack of 2-inch pipe with hooks for the hose, pipe for the air, and a support for the crankcase drain funnel arm.

There are four lubricant tanks, each with a capacity of 150 pounds. These are for universal joint lubricant, gear compound, gear oil, and high pressure lubricant. There is an air operated atomizer for penetrating oils. Lubricants used in small volume are dispensed with hand operated equipment.

Each tank has a 3-inch opening for filling, closed by a flat plate held in place by six bolts. No trouble has been experienced from air leaks or damaged gaskets.

A copper air line leads to each tank from a balanced reducing valve at the "Lube-Master" air manifold. Each tank has an air inlet valve, a bleeder valve, an air pressure gauge, and a safety valve. Gear oil and gear lubricant tanks are equipped with meters.

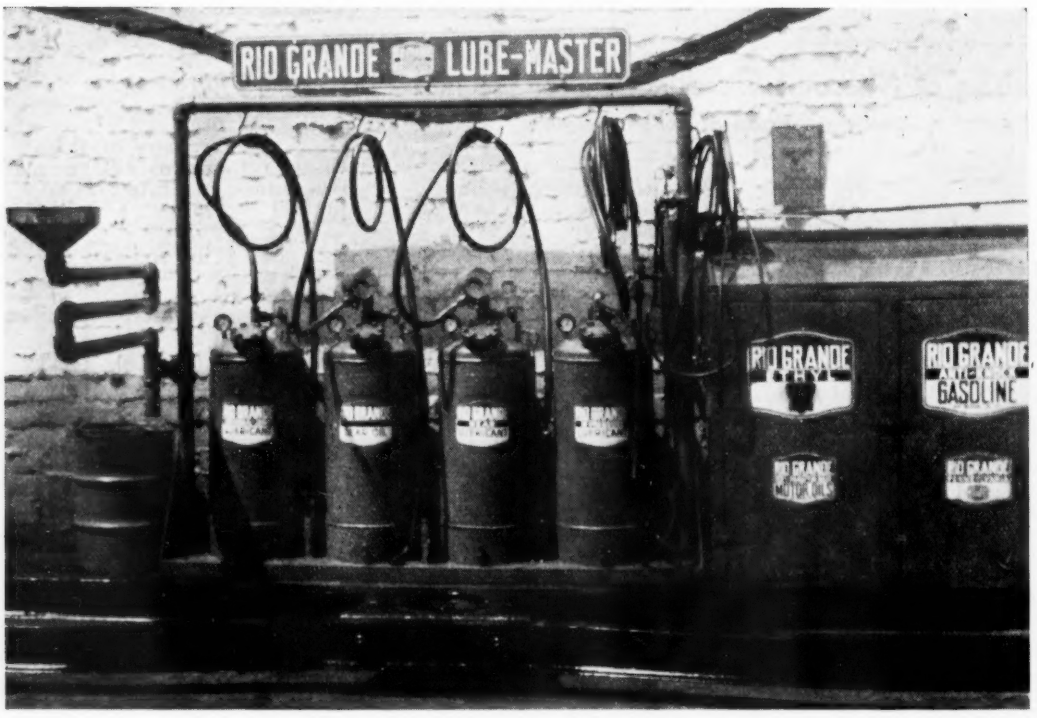
The gear oil, gear lubricant, and universal joint lubricant tanks are provided with a 12-foot length of dispensing hose. At the end is a cut-off valve and a nozzle. The high pressure lubricant tanks supply lubricant to a high pressure booster which will deliver up to 10,000 pounds per square inch grease pressure. A portable, electrically operated gear flusher is part of the system.

Operators can use the equipment from either side of the installation.

A complete advertising and follow-up plan for merchandising lubrication service is furnished each outlet in which a unit is installed.

A. H. Harris, Rio Grande lubrication engineer, designed the unit to provide dealer outlets with a place for storing and applying lubricants used in large volume, and with all equipment mounted uniformly and at small installation cost.

The Rio Grande company markets a complete line of products, mainly through dealer outlets. The "Lube-Master" provides these dealers with another department, and some installations have increased revenues up to 200 per cent. One operator wrote that the new lubrication unit during the price war meant "the difference between eating and not eating."



Rio Grande Oil Co.'s "Lube-Master" for lubricants used in large volume for installation at dealer service stations

THEY TAKE IT AND COME BACK FOR MORE

NO TRUCK TIRE built is more ruggedly staunch and upstanding than the Goodyear All-Weather Tread Balloon Truck Tire. Its record for long, economical life in hard, fast hauling duty is without rival.

First of all, it has the world-famous All-Weather Tread — the *traction* tread, with its deep, thick, sharp-edged diamond blocks that take hold and grip fast in any going.

Then it has the incomparably staunch and elastic Goodyear Supertwist Cord carcass — a body that stays cool under the continuous flexing action of long distance running at sustained speed.

Use Goodyear All-Weather Truck Balloons, and get the savings and earnings that come from less tire trouble, greater load and truck cushioning, and longer tire life.

Their price is as low as that of any standard truck balloons; their cost per tire mile and per ton mile is lower. See your Goodyear Truck Tire Service Station Dealer today.

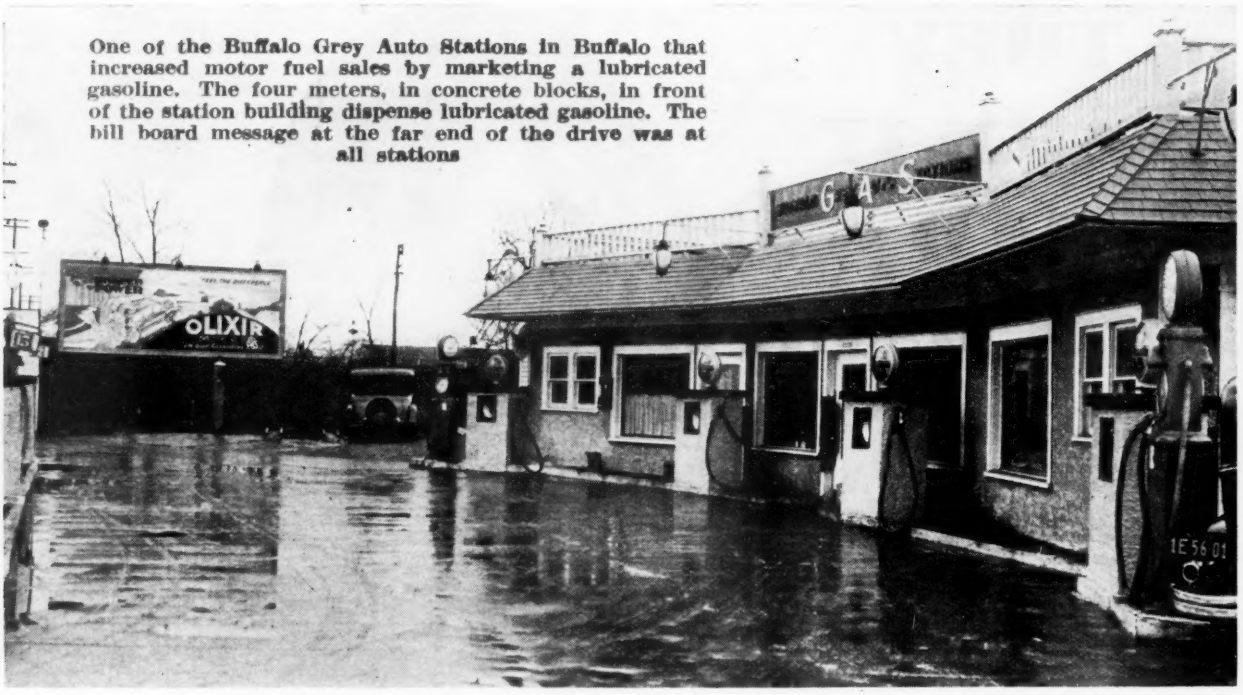
Extra valuable, too, are the advantages of K-Rims—noted for their ease of operation, with open valve stem slot and split base; for their safety in service, and for their interchangeable mounting

TUNE IN: Goodyear invites you to hear the Revelers Quartet, Goodyear Concert-Dance Orchestra and a feature guest artist every Wednesday night, over N. B. C. Red Network, WEAF and Associated Stations

On Your New Trucks *Specify Goodyears*

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND



One of the Buffalo Grey Auto Stations in Buffalo that increased motor fuel sales by marketing a lubricated gasoline. The four meters, in concrete blocks, in front of the station building dispense lubricated gasoline. The bill board message at the far end of the drive was at all stations

Lubricated Gasoline Increases Sales For Buffalo Station Operator

BUFFALO Grey Auto Stations, Inc., has increased its sales volume of motor fuel by marketing a lubricated gasoline at five stations here. Valves and upper cylinders are lubricated by this oil. The lubricant is put in the station's gasoline storage tanks, and passes to the customer's gasoline tank with the motor fuel.

Following the experience of additional volume at the Buffalo stations the company began marketing this gasoline at outlets in Detroit, Kingston, Pa., and Albany, Troy and Lockport, N. Y.

Lubricated gasoline, under the name Olixir, was placed in the five Buffalo stations on Feb. 12. An increase in sales was experienced at once in all stations, and some outlets were selling as high as 35 per cent (a conservative figure) more gasoline. This is for sales in the second half of February compared with those for the first half.

All advertising, except bill boards at stations, stopped eighteen days after lubricated gasoline was placed in the stations, but sales volume continued at the new high level.

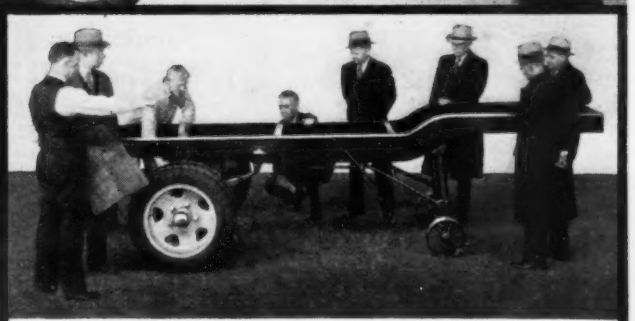
The price was advanced early in April by ½ cent a gallon. Sales volume decreased about 10 per cent. This is attributed to price buying by the customer. Several Buffalo Grey Auto Stations have low price competition within several hundred yards; at one outlet the competing station has a 3½-cent advantage, and at another a 1½-cent advantage.

The chief value of lubricated gasoline in building sales is the brand name and identity that it gives the product of the independent marketer, in the opinion of A. R. Carlson, general manager of the company.

A consumer buys a brand of gasoline because of that brand, he continues, but when there is no identity involved the sale is made largely on price. With lubricated gasoline the marketer has identity and merit in his product that takes the motor fuel out of the rut of price competition. The customer is not considering buying "gasoline" at one price over another, but of buying a certain gasoline with certain merits at the price asked.

Buffalo Grey Auto Stations purchases the lubricant from the J. B. Clark Oil Co., Buffalo. The oil is placed in the gasoline storage tanks, and mixed by

A COMPLETE LINE TO COVER EVERY HAULING NEED



NOW! A GMT-built Semi Trailer

AT A NEW LOW PRICE

This lighter and stronger trailer has a 14-ft. one-piece frame, Spoksteel wheels, and special safety devices—it is the only 5-ton trailer chassis priced at **$347** F. O. B. PONTIAC

"GMT" stands for more efficient, more economical, more satisfactory hauling equipment.

It may mean a 1½-2 ton truck at $595, or a giant 20-ton unit, as your needs dictate. It means trailers built to General Motors Truck standards, and sold and serviced by GMT organizations.

But, first of all, "General Motors Truck" means a conscientious and scientific analysis of your individual hauling requirements, and the recommendation of specific equipment that fills the bill at lowest cost to you—all factors considered.

With GMT, the application of trucks and trailers—the management of trucking operations—is a science as important as truck design and manufacture. The GMT representative in your locality is equipped to give you every advantage of the Company's broad knowledge of trucking practice.

He will tell you whether you are spending too much for trucks, or are "economizing" unprofitably. Call him in, or write Dept. 2-E-25 for booklet, "Cutting Distribution Costs with Motor Trucks."

GENERAL MOTORS TRUCK CO., PONTIAC, MICH.

(A Subsidiary of Yellow Truck & Coach Mfg. Company)

Time Payments Available Through Our Own Y. M. A. C.

GENERAL MOTORS TRUCKS AND TRAILERS

THE RIGHT TRUCK FOR EVERY RUN—1½ TO 20 TON

circulating the motor fuel through the tank car unloading pumps.

The motor fuel is sold under the brand name of Olixir. Claims for Olixir, the upper cylinder lubricating oil, have been found to be substantially true, Mr. Carlson commented. He advised putting the lubricant in a good grade of gasoline, having a 68 or 69 octane number.

Merchandising of Olixir motor fuel was started with a contest, advertised on the radio, through newspaper space, and by circulars.

Stations were prepared by painting pumps black and yellow and installing the globes. Large, illuminated, bill boards at stations carried a picture of an automobile climbing a country hill, pushed by a hand. The caption read "Unseen Power".

Newspaper space was used once a week to tell about the contest. Each of the three Buffalo papers carried one advertisement.

Thirty thousand circulars were distributed to homes in the natural marketing territory of the five stations. These told about the contest for the best 25 word statements on "what Olixir gasoline does for my automobile".

There were eighteen winners in the contest. Each received 100 gallons of gasoline. Winners were given a card, to be punched as the motor fuel is used. Everyone submitting a statement was given a drain of Olixirized Pennsylvania motor oil at half price.

Radio advertising consisted of a 100-word announcement over a Buffalo station late in the evening. Five announcements were made, prior to giving the first award on Feb. 17, telling about the contest and the new gasoline. Then there were eighteen announcements of awards, one each evening. Judges in the contest were J. B. Clark, J. B. Clark Oil Co., and two officials of the radio station.

Circulars were distributed to all customers at stations also, explaining the scientific aspect of the lubricated gasoline.

More than 1800 statements were received during the contest. The majority of statements indicated that an improvement in the quietness and smoothness of the engine was noted immediately with the Olixir motor fuel. Many cases of sticky valves were reported cured.

One of the most interesting statements came from a salesman covering a territory out of Buffalo. He wrote that he liked Olixir so well that he wanted to use it all the time in his automobile. As he could not buy it when on the road he had installed a ten-gallon tank in his auto so he could make the entire trip on Olixir purchased from the Buffalo Grey Auto Stations.

Four Pamphlets Given Customers Advertise Sears Gasoline

SEARS, ROEBUCK & CO. is advertising the qualities of its gasoline by passing out pamphlets to customers at its new service stations in Chicago. The pamphlets tell about the qualities of the gasoline in easily understandable language.

Four pamphlets are in the series. One is given out each week.

The first has the title of "Facts worth knowing about Cross Country gasoline and motor oils." It explains that gravity no longer is a guide to gasoline quality, but that the octane number is. The technical meaning of octane number is not given the customer simply being told that the higher the octane number the better the anti-knock quality.

At the top of the inside spread there is a diagram, with automobiles in various size, to explain anti-knock requirements. Twenty per cent of the automobiles today require a 70 octane gasoline; this is Sears' "Super" grade. Sixty per cent are said to operate with a 60 octane fuel; this is the "Anti-knock" grade. Fifteen per cent of automobiles, including most trucks, are claimed to need a 53 octane fuel; this a Sears' "Blue" grade. Only 5 per cent are said to require more than a 70 octane gasoline.

This pamphlet also tells that every tank car of gasoline is tested by an independent petroleum laboratory before unloading.

The second pamphlet, "Cross Country gasoline reduces your motoring costs," takes up the distillation range, showing that Sears' motor fuel gives easy starting, speedy acceleration, and maximum mileage. Also, that it is "Timed" to fit summer and winter requirements.

The third pamphlet, "Read what's behind the Cross Country gasoline pump," takes up vapor lock, and sulfur and corrosion tests.

Sticky valves is the subject of the final pamphlet. Cross Country gasoline is claimed to be 99 99/100 per cent free of gum. Then the six facts concerning all qualities are listed.

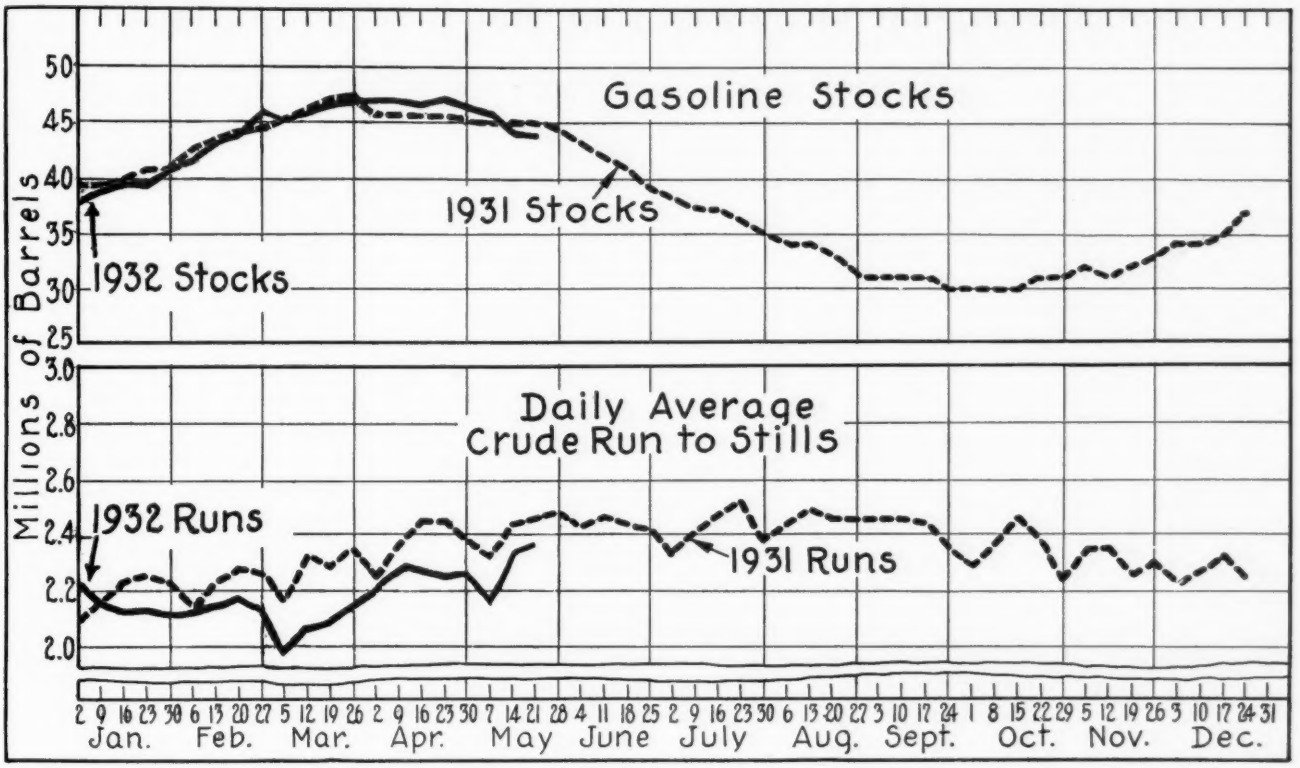
On the back of each pamphlet the other services of the station are listed. These are oil, greasing, washing, polishing, brake adjusting, brake relining, wheel alignment, battery servicing, free tire mounting, and tire repairing. All work is guaranteed. The customer is informed that the same rigid specifications are followed on tires and batteries, oil, as are insisted upon for gasoline.

Free parking at "Sear Super Service Station" is advertised also.

WADENA, Minn.—E. R. Jacobson, formerly representative at Owatonna, Minn., for the White Eagle Oil & Refining Co. has taken the agency of The Texas Co. here.

ATHENS, ILL.—R. Oakley, of Oakley's Service Station here, has signed a franchise to sell Atlas tires and tubes for the Standard Oil Co. of Indiana.

U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.



Bulk Gasoline Stocks Reduced 532,000 Barrels

By Teletype
NEW YORK, May 24

BULK gasoline stocks were reduced 532,000 barrels in the week ended May 21 according to reports gathered by the American Petroleum Institute from refiners with 95.1 per cent of the nation's still capacity.

Refinery gasoline stocks were reduced 95,000 barrels to 44,703,000 barrels. Stocks of gasoline at bulk terminals and in water borne transit to these terminals east of California were reduced 437,000 barrels to 16,019,000 barrels.

In the week ended May 14 bulk gasoline stocks were reduced 8000 barrels.

Crude runs to refinery stills still tended upward but not as rapidly as in previous weeks. Refiners operated at 64.6 per cent of capacity during the week as compared with 64.4 per cent in the week ended May 14.

Production of cracked gasoline also tended upwards. Average production for the week was 485,100 barrels daily, an increase of 7400 barrels daily average.

Reductions in refinery gasoline stocks were confined to the East Coast, Louisiana Gulf and California groups. All others reported increases. Louisiana Gulf refiners drew 139,000 barrels of gasoline from storage, East Coast 54,000 barrels and California 58,000 barrels.

Fuel oil stocks increased 760,000 barrels to 125,546,000 barrels.

Current Refinery Operations

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks (Thousands of Barrels) Gasoline		Gas & Fuel Oil		Cracked % of Total Capacity Reporting	Gasoline Production Daily Av. Production (Barrels) Week Ended	
		May 21	May 14	May 21	May 14	May 21	May 14	May 21	May 14	May 21	May 14	May 21
East Coast	100.0	453,100	447,600	71.5	70.6	6,387	6,441	6,211	5,994	94.1	94,300	90,300
Appalachian	91.8	108,000	96,400	78.6	70.2	1,760	1,701	1,005	1,104	96.1	26,800	27,000
Ind., Ill., Ky.	98.9	306,700	307,700	71.1	71.3	6,545	6,450	4,122	4,139	95.5	92,700	92,000
Okla., Kans., Mo.	89.6	246,000	263,100	56.5	60.5	3,995	3,992	3,335	3,304	92.3	55,600	55,100
Texas	91.3	580,900	585,600	75.9	76.5	8,064	8,062	8,959	8,888	96.8	115,300	114,900
La., Ark.	98.9	164,100	161,300	71.2	70.0	1,853	1,996	4,726	4,659	100.0	37,100	34,300
Rocky Mountain	89.4	42,900	38,000	29.8	26.4	2,046	2,045	643	638	98.5	12,400	12,400
California	96.7	462,700	459,900	52.3	52.0	14,053	14,111	96,545	96,060	100.0	50,900	51,700
Total	95.1	2,364,400	2,359,600	64.6	64.4	44,703	44,798	125,546	124,786	95.6	485,100	477,700
Texas (Gulf Coast)	99.8	480,900	470,300	90.5	88.5	6,451	6,451	6,138	6,089	98.6	91,100	90,700
La. (Gulf Coast)	100.0	114,600	110,000	77.7	74.6	1,703	1,842	3,894	3,927	100.0	30,100	25,000

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations, Week Ended May 20 (By Teletype)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended May 20
Plants Reporting.....	10	23	23	10	10	76
Da. Av. Cap. (Bbls.)..	94,000	162,500	107,400	71,500	60,700	496,100
Da. Cracking Capacity	53,200	64,600	23,100	26,250	31,700	198,850
Da. Av. Crude Runs..	60,261 + 1.3	77,962 — 5.7	50,355 — 17.2	11,228 + 7.5	35,938 — 11.3	235,744 — 7.2
Da. Av. Other Oil....	6,165 — 37.4	1,452 — 40.4	1,452 — 53.7	....	16,387 + 12.7	25,456 — 15.0
GASOLINE—Gallons						
Stocks, May 13.....	38,364,000	47,208,000	31,982,000	11,770,000	6,182,000	135,506,000
Prod. 5-13 to 5-20....	11,072,000 + 5.3	13,404,000 — 4.5	8,392,000 — 9.8	1,137,000 + 16.9	5,609,000 — 15.9	39,614,000 — 4.5
Ship. 5-13 to 5-20....	11,489,000 — 0.4	13,033,000 + 6.3	10,005,000 + 7.3	1,131,000 — 24.8	5,678,000 — 8.4	41,336,000 + 1.3
Stocks, May 20.....	37,947,000 — 1.1	47,579,000 + 0.8	30,369,000 — 5.0	11,776,000 + 0.05	6,113,000 — 1.1	133,784,000 — 1.3
Ratio Sales to Prod...	103.8%	97.2%	119.2%	99.5%	101.2%	104.3%
KEROSINE—Gallons						
Stocks, May 13.....	3,316,000	4,845,000	2,955,000	12,000	722,000	11,850,000
Prod. 5-13 to 5-20....	2,171,000 — 32.6	2,092,000 — 14.8	660,000 — 43.6	22,000	395,000 — 14.1	5,340,000 — 26.9
Ship. 5-13 to 5-20....	2,295,000 — 23.0	1,763,000	596,000 — 35.1	8,000 +300.0	342,000 + 37.9	5,004,000 — 15.4
Stocks, May 20.....	3,192,000 — 3.7	5,174,000 + 6.8	3,019,000 + 2.2	26,000 +116.7	775,000 + 7.3	12,186,000 + 2.8
Ratio Sales to Prod...	105.7%	84.3%	90.3%	36.4%	86.6%	93.7%
STOVE DISTILLATE—Gallons						
Stocks, May 13.....	1,716,000	2,402,000	79,000	20,000	51,000	4,268,000
Prod. 5-13 to 5-20....	459,000 + 11.7	571,000 + 31.9	100,000 + 85.1	9,000	109,000 + 10.1	1,248,000 + 25.2
Ship. 5-13 to 5-20....	394,000 — 43.1	483,000 + 17.8	41,000 + 28.1	....	101,000 — 6.5	1,019,000 — 18.8
Stocks, May 20.....	1,781,000 + 3.8	2,490,000 + 3.7	138,000 + 74.7	29,000 + 45.0	59,000 + 15.7	4,497,000 + 5.4
Ratio Sales to Prod...	85.8%	84.6%	41.0%	.....	92.7%	81.7%
GAS OIL—Gallons						
Stocks, May 13.....	4,597,000	13,638,000	4,293,000	1,188,000	3,615,000	27,331,000
Prod. 5-13 to 5-20....	650,000 — 44.3	—502,000	212,000 — 35.0	41,000 — 43.8	2,203,000 + 10.9	2,604,000 — 18.8
Ship. 5-13 to 5-20....	640,000 — 20.0	71,000 — 89.9	345,000 + 86.5	58,000 — 57.0	1,869,000 + 6.9	2,983,000 — 16.5
Stocks, May 20.....	4,607,000 + 0.2	13,065,000 — 4.2	4,160,000 — 3.1	1,171,000 — 1.4	3,949,000 + 9.2	26,952,000 — 1.4
Ratio Sales to Prod...	98.5%	.....	162.7%	141.5%	84.8%	114.6%
FUEL OIL—Gallons						
Stocks, May 13.....	13,670,000	50,483,000	86,371,000	11,149,000	18,196,000	179,869,000
Prod. 5-13 to 5-20....	5,201,000 + 29.2	4,272,000 — 21.6	4,816,000 — 22.3	1,921,000 — 2.9	3,398,000 — 10.9	19,608,000 — 8.6
Ship. 5-13 to 5-20....	4,408,000 + 27.8	3,178,000 — 34.9	5,477,000 — 5.8	2,430,000 + 0.5	3,860,000 — 1.6	19,323,000 — 5.5
Stocks, May 20.....	14,463,000 + 5.8	51,577,000 + 2.2	85,740,000 — 0.7	10,640,000 — 4.6	17,734,000 — 2.5	180,154,000 + 0.2
Ratio Sales to Prod...	84.8%	74.4%	113.1%	126.5%	113.6%	98.5%

Gasoline Produced by Various Methods, Week Ended May 20

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run.....	5,810,000	52.5	7,204,000	53.7	5,084,000	60.6	967,000	85.0	2,783,000	49.6	21,848,000	55.2
Cracked.....	4,521,000	40.8	4,892,000	36.5	2,820,000	33.6	147,000	12.9	2,249,000	40.0	14,629,000	36.9
Natural.....	741,000	6.7	1,308,000	9.8	488,000	5.8	23,000	2.1	577,000	10.4	3,137,000	7.9
Total.....	11,072,000		13,404,000		8,392,000		1,137,000		5,609,000		39,614,000	

+ or — columns are % change over previous week.

Mid-Continent Refiners Reduce Gasoline Stocks

Staff Special by Teletype
TULSA, May 23

STOCKS of gasoline were reduced 1,400,000 gallons in the week ended May 20 at Mid-Continent refineries reporting weekly to this publication. The stock reduction came as a result of better demand and a concurrent reduction in crude runs to stills.

Shipments of gasoline gained 500,000 gallons, the better demand being enjoyed by Oklahoma and north Texas refiners. In other groups demand was somewhat lower than in the previous week.

Production of gasoline was reduced 1,800,000 gallons during the week as a result of the reduction of 18,100 barrels daily average in crude runs to stills. Kansas and West Texas refiners increased their scale of operations while all other groups were cutting.

The recent heavy demand for kerosine was lightened during the week, shipments dropping 900,000 gallons. Production also was reduced but stocks increased 300,000 gallons. Stocks of stove distillate also rose and

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended May 20. Change in stocks figured from April 22.

GASOLINE

	Gallons
Production	159,672,000
Shipments	155,319,000
Net change in stocks	+4,353,000
Ratio sales to production	97.3%

KEROSINE

Production	24,728,000
Shipments	24,233,000
Net change in stocks	+495,000
Ratio sales to production	98.0%

STOVE DISTILLATE

Production	5,014,000
Shipments	3,878,000
Net change in stocks	+1,136,000
Ratio sales to production	77.3%

GAS OIL

Production	15,870,000
Shipments	15,729,000
Net change in stocks	+141,000
Ratio sales to production	99.1%

FUEL OIL

Production	82,908,000
Shipments	78,242,000
Net change in stocks	+4,666,000
Ratio sales to production	94.4%

production increased and shipments fell.

Gas oil stocks were reduced slightly while fuel oil inventories were higher at the end of the week.

Suit Filed To Dissolve Sinclair-Prairie

CHICAGO, May 21.—A suit asking for a dissolution of the recent consolidation of the Sinclair Consolidated Oil Corp., Prairie Oil & Gas, and Prairie Pipe Line Co. and the appointment of a receiver, was filed May 20 in U. S. District Court here by a minority stockholder.

W. R. Carney, Chicago, wealthy coal operator, who owns 3825 shares of Prairie Pipe Line Co. stock filed the suit, and declares many other stockholders are supporting this action. Mr. Carney was chairman of the minority stockholder's committee that unsuccessfully tried to prevent the consolidation.

The bill of complaint charges that the Bancamerica Blair Corp. received $700,000 in fees for its work in the consolidation; that the balance sheet of Prairie Pipe Line at the end of 1931 showed assets of $135,112,031 before the consolidation, and that it was a profitable business with no likelihood of financial difficulties and had an enormous cash surplus. Through interlocking directorships, it is charged, the consolidation was pushed through and stockholders forced to exchange their Prairie Pipe Line stock for that of the Consolidated company against their best interests.

The petition also asks for an accounting to stockholders from officers of the various companies, and a restoration of the original properties and holdings of the member companies. Violation of Kansas laws, where Prairie Pipe Line is incorporated, is also charged.

Defendants named, among others, are Commonwealth Transportation Co., Commonwealth Oil & Gas Co., Sinclair Prairie Pipe Line Co., and the Consolidated Oil Corp.

Did You Say Depression?

NEWARK, O.—Thirty-one carloads of automobile tires shipped in one week to a single customer!

That, the Pharis Tire & Rubber Co., Newark, believes to be a single-shipment record. The "Pharis Roadgrippers" went out the week of May 9 and this shipment, according to the company, is "an encouraging sign of improving business, although the Pharis factory is one that has scarcely known the depression existed since an unbroken schedule of production in good volume was maintained throughout the last two years."

Outside dimensions 58½" high 28⅜" wide, weight 25 Lbs.

Take sign insert 28" x 44".

Black enamel finish—baked on.

Shipped knocked down and bundled.

Inner frame welded at bottom leaving the upper part to snap behind catches welded to the sides and top of outer frame.

To change insert or put in new one, which may be stiff cardboard or steel, place screw driver between inner frame and angle and pry inner frame enough to clear catches.

Sample for $2.00—Special prices in quantities.

SIGN DEPARTMENT
MID-WEST FORGING CO.
38 S. Dearborn St.
Chicago

PETROLEUM PRODUCTS
From All Fields

Carloads, Tank Cars, and Cargoes
For Domestic or Export

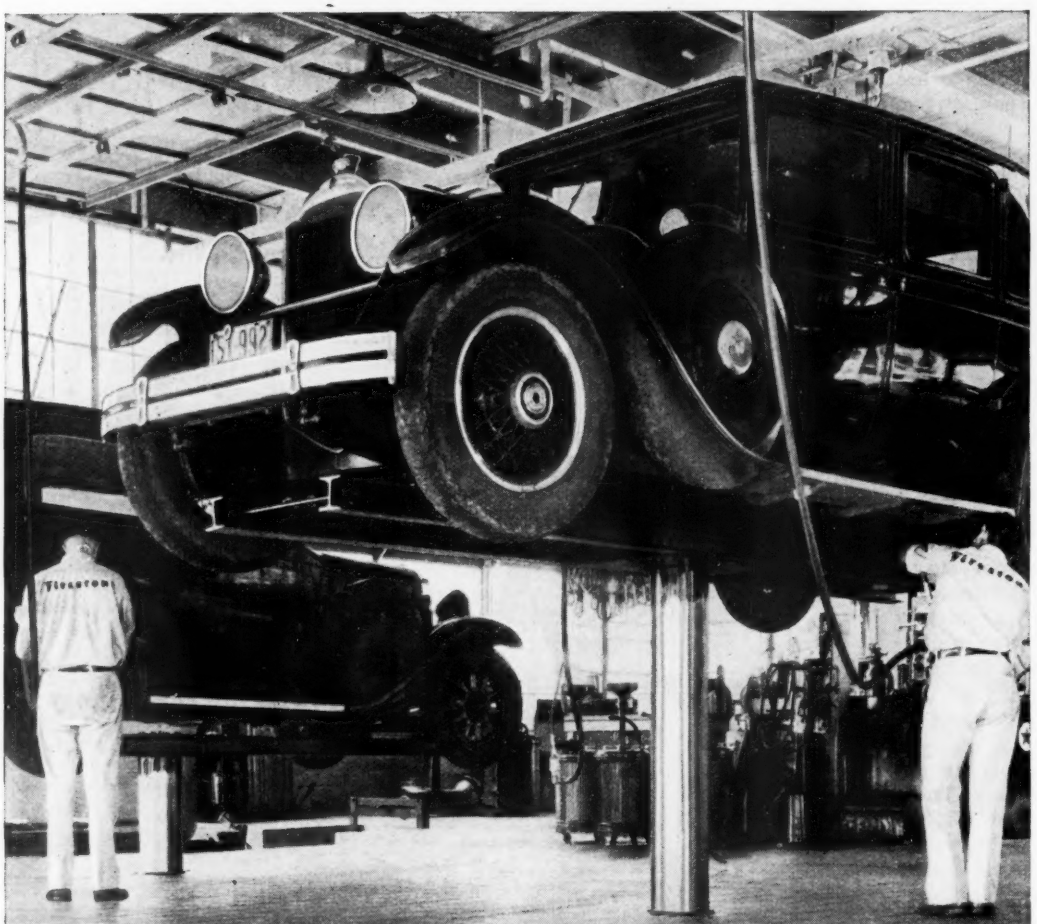
GASOLINE KEROSENE NAPHTHA
CRUDE OIL FUEL OIL GAS OIL FURNACE OIL
CYLINDER STOCKS
UNFILTERED AND FILTERED
BRIGHT STOCKS
COLD SETTLED AND CENTRIFUGED
PALE—RED OILS
WAX—PETROLATUM
TECHNICAL WHITE OILS
WHITE MINERAL OILS

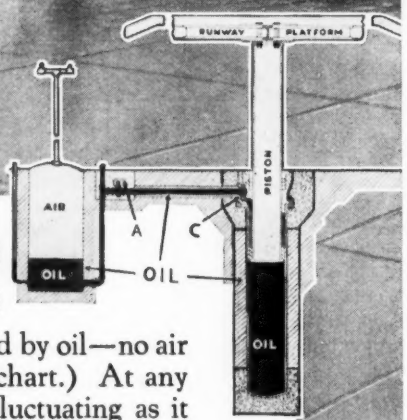
For 35 years of reliability, service and integrity—this Company enjoys an International Reputation

JAMES B. BERRY SONS' CO., INC.
General Office: **Oil City, Pa.**

District Offices at
New York. Philadelphia, Boston, Chicago
London—Hamburg

Cable Address—JASBER Oil City *All Codes*





SAFE and LOCKED at any and all heights

The Curtis is both lifted and locked by oil—no air in either cylinder or plunger. (See chart.) At any height, it is as fixed, solid and unfluctuating as it would be on bedrock.

The Curtis cannot even lower without two deliberate actions by the operator. He must (first) open the air valve and (second) step on the oil lock valve. Both valves out from under the lift. Even then, an automatic retard valve restricts the out-flow and positively controls lowering of lift to a safe, fixed speed, independent of operator.

Read the six other safety advantages of Curtis Lifts listed in side column. Then write for a detailed catalog.

Curtis Pneumatic Mchy. Co., 1965 Kienlen Ave., St. Louis

CURTIS

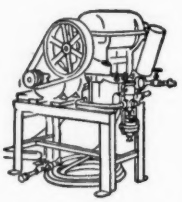
OIL-LOCKED LIFTS

CARE WILL SAVE YOUR CAR

OTHER SAFETY ADVANTAGES OF CURTIS LIFTS

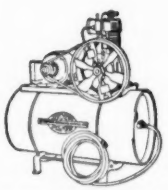
1. Packing gland at top of cylinder. No hidden leather cup to leak.
2. Oil lock unfailingly automatic. No one can neglect it.
3. Lift can't lower unless both air valve and oil lock valve are operated.
4. Oil lock and air valve are not under lift.
5. Retard valve (C in chart) automatically controls safe lowering speed.
6. Structural steel platform with ample excess strength factor. 9½ or 10½-in. diameter piston.

Free-wheel or roll-on types, also bus or truck size. Licensed under basic Lunati patents.



CURTIS HYDRAULIC CAR WASHER

Fully enclosed slow-speed three-cylinder pump, specially designed by Curtis for car washing. Flooded and direct self-oiling systems. No grease cups. Automatic pressure governor. "V" belt drive.



CURTIS COMPRESSOR

Has Timken tapered roller bearings. Automobile type "V" belt drive, automatic centrifugal unloader. Universal motor mounting. All steel base. Improved "Centro Ring" oiling.

CURTIS AIR STANDS—Reel and tower types.

Refinery - Tank Wagon Markets

Tank Car Markets Mark Time In Most Areas; Price Trends Show Little Change

CLEVELAND, May 23

OIL markets, generally speaking marked time last week. Price trends were without material change and while activity remained relatively light in most areas indications pointed to a renewal of buying interest in the near future.

Crude oil markets were steady. Retail gasoline markets for the most part showed little change. A 2 to 4-cent reduction in New York City prices was evidence of the fact that dealers in some parts of the country still are enjoying wide margins.

As this is being written comes announcement of 0.5-cent reduction in regular grade gasoline throughout Standard of Louisiana territory. Retail markets elsewhere in the country, however, appeared to be in good shape. Prices were brought up to statewide level in northeastern Ohio, a territory where price cutting has been rampant for sometime past.

A rally in gasoline tank car markets got under way in the middle west late last week. Inter-refinery buying of third-grade gasoline helped the Mid-continent situation considerably. Improved demand from the jobbing trade was reported in Chicago. High octane gasoline prices turned upward in the Chicago market and surplus offerings of the low octane gasolines were not as much in evidence as the week ended. Weather conditions were more favorable and there were orders for rush shipments in many instances from jobbers who had allowed their storage to run low on the receding market.

FOR your own business welfare, as well as for business generally, encourage profitable prices when you buy—

Because you want profitable prices when you sell.

You cannot sell your products at a profit, if the man who sells you has to do so at a loss.

This applies both to petroleum products and equipment.

Editor

The unsettled condition of the metropolitan retail market did not hurt the New York tank car markets to any noticeable extent. Most of the tank car shipments are to areas unaffected by the retail price cut. Tank car trading continued quiet but this was to be expected in view of the fact that eastern jobbers for the most part covered on their May requirements late in April before prices advanced.

The Pennsylvania gasoline market was steady and although buying was on a slightly smaller scale it was still sufficient to keep the market free of surplus.

Kerosine prices eased slightly in most markets. Other burning oils were steady despite the off season. Buying of lubricating oils continued light but there was no move to reduce prices to stimulate activity.

The Gulf cargo market was quiet. East coast and Atlantic foreign buyers continued to display considerable interest in the California market but actual buying was still lacking.

High Octane Gasoline Prices Rally At Chicago

Staff Special

CHICAGO, May 21

GASOLINE prices took an upward turn in the Chicago market toward the end of the week after an earlier decline of 0.125 cent, and following several weeks of declining markets.

Improved weather conditions throughout the middle west with improved consumption of gasoline forced jobbers to take a more active interest in the tank car market and demand showed a substantial increase. The improved demand was apparent both for contract and open market shipment. Several traders said that while their spot sales had not shown any considerable increase they had received inquiries from a number of jobbers who had been out of the market and believed they would culminate in sales next week.

In addition to the improved jobber demand, reports from Oklahoma and Texas indicated that considerable inter-refinery buying had taken place there and had taken practically all of the distress gasoline off the market. This showed up to some extent in resale buying prices as a number of carlot marketers said their buying prices had advanced and that several refiners who had been offering gasoline had withdrawn from the market.

Summary of Group 3 Quotations for U. S. Motor Gasoline
In Effect May 23, 1932

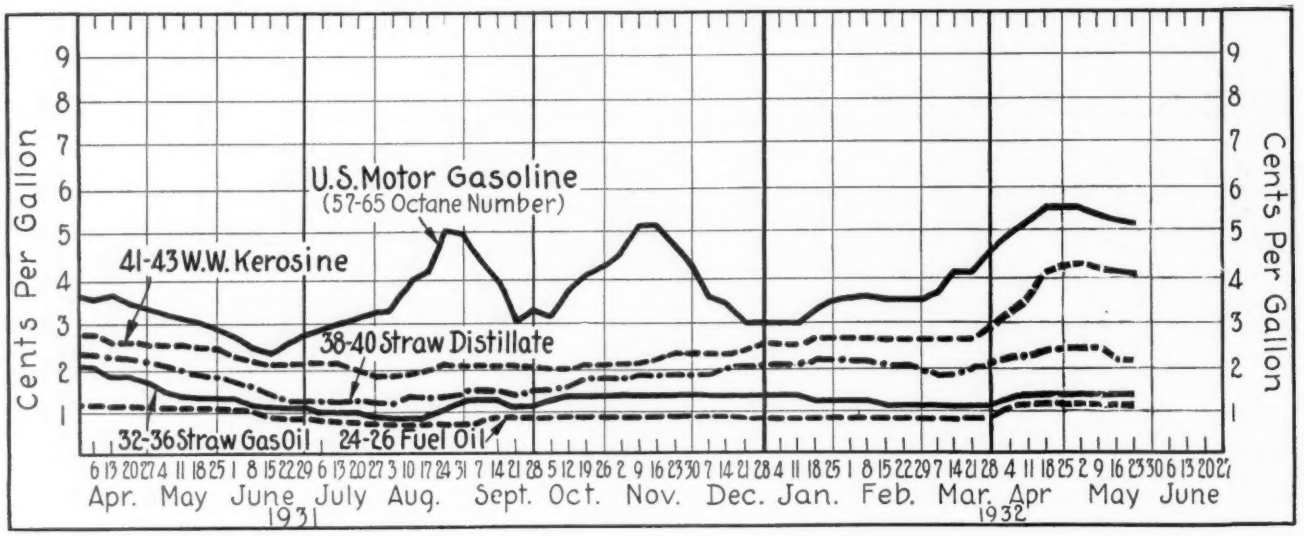
	Below 57 Octane No.	57-65 Octane No.	Above 65 Octane No.
Okla.	4.50-4.75	5.00-5.25	5.25-5.50
Kans.	4.50-4.75	5.00-5.25	5.25-5.50
N. Tex.	4.50-4.75	4.875-5.125	5.00-5.25
W. Tex.	4.50-4.75	4.75-5.00	5.125-5.25
La.-Ark.	4.50-4.75	5.00-5.25	5.25-5.50
Ind.-Ill.	4.375-4.50	.....	.....

Prices are those quoted on the basis of f.o.b. Group 3 by refiners in the districts designated.

Most of the bullish influences on the gasoline market occurred toward the end of the week after prices earlier had moved down 0.125 cent from those prevailing May 16. The improvement in prices was especially apparent on the higher octane grades and by May 21 these had regained the price levels held May 16. On the low octane gasolines the upward movement was not quite as strong as on the higher octanes.

U. S. Motor, below 57 octane number, was offered mostly at 4.25 to 4.5

Current Prices of Principal Mid-Continent Refined Products



Prices shown are in Group 3 basis and extended to date shown in Refinery Market Table Section of this issue

cents May 17 and some sellers still were willing to sell at 4.25 cents on May 21. However, there were fewer traders offering this grade at 4.25 cents as the week ended and several of them said they probably would advance early next week if demand continued to improve.

Kerosine prices continued to lose ground in the face of continued light demand and freer offerings of the commodity. The 41-43 w. w. grade was offered at 3.75 to 4 cents on May 21 compared to a range of 3.875 to 4.125 cents on May 16.

Distillate and gas oil were in fairly good demand for this season with little change noted in prices. High gravity fuel oils continued comparatively scarce, while heavy fuel oils were quiet. Prices were advanced on the higher gravity oils in most quarters.

Delporte Manages Racine Marketing Company

RACINE, Wis.—C. A. Delporte, formerly in the retail sales department of Mid-Continent Petroleum Corp., now is general manager and secretary of the W. H. Pugh Oil Co. here. The Pugh family has been connected with retail coal sales here for 81 years, and on Feb. 1 formed the oil company. A bulk plant and service station were built near the coal company office. Recently the company took over the former Racine Gas & Oil Co. The Pugh company distributes Dixie products.

Gasoline Volume Declines In Northern Ohio

CLEVELAND, May 24.—Gasoline consumption in northern Ohio has declined, as indicated by automotive registrations and tank car receipts, so far this year over the same period in 1931, but oil men at the Western Reserve Petroleum Club meeting last night did not view the situation with alarm.

In place of formal addresses the club selects several pertinent topics for general discussion. N. F. Squire, vice-president of Pocahontas Oil Corp., as chairman of the subject committee introduced the question of declining gallonage with tank car receipt stations. Hubert B. Fuller, Cleveland attorney, discussed state and county automobile registration figures.

That all companies have experienced a decline in gallonage, and that there is no need to resort to special tactics in an attempt to win back volume, was the consensus of the marketers.

Directors for the coming year were elected. They are N. F. Squire, Pocahontas Oil Corp.; Robert Sprague, National Refining Co.; D. N. Myers, Texaco Distributing Co.; W. Wishar, Sun Oil Co.; R. C. Whitehill, Gulf Refining Co.; J. G. Jordan, Shell Petroleum Corp.; and A. C. Ellinger, Canfield Oil Co.

The annual summer outing is scheduled to replace the regular dinner meeting on June 20.

Film Dramatizes Selling Of New Mobiloil

NEW YORK, May 30.—A talking picture drama to create interest and lend color to the humdrum business of selling oil has been found effective by the recently merged Socony-Vacuum Corp. in introducing the first product of the merger, the New Mobiloil.

This motion picture, produced by Caravel Films, Inc., and Batten, Barton, Durstine and Osborne, advertising agency handling the Socony-Vacuum account, is being shown to dealers and salesmen at special meetings arranged for that purpose.

The plot around which the action revolves shows how a run-down gasoline station operated by a half-hearted, negative individual becomes a thriving and profit-making business after the Socony-Vacuum salesman takes the alert one of the two owners in hand, cleans up the station, and shows him how to push the new oil. The film pictures the processes by which the oil

Prices A Year Ago

May 25, 1931

	Oklahoma	Penna.
58-60 U. S. Motor Gasoline	2.75-3.25	5.00-5.25
Grade A Natural Gasoline	1.875-2.00	.....
Kerosine (Okla. 41-43; Pa. 47 w.w.)	2.375-2.625	4.50-4.75
Fuel Oil (Okla. 24-26; Pa. 36-40)	$0.45-$0.50	2.50-2.75
Crude (Okla. 35-35.9)	$0.57	$1.75
Chicago tank wagon (including 3c tax)		14.00c

is made, the tests to which it is subjected, how it should be pushed and how and why stations standardizing on this product can make money.

Kennedy on Trip to Northwest

YAKIMA, Wash.—Harry J. Kennedy, general sales manager of the Continental Oil Co., Ponca City, Okla., and E. F. Battson, manager of the Butte, Mont., division of the company, with J. B. Michaels, covered the Yakima, Wash., territory recently.

Cite Dealers for Selling Inferior Gasoline

OKLAHOMA CITY, May 21.—The Oklahoma Corporation Commission has issued citations against the following distributors for alleged sale of "inferior motor fuels" through pumps not labeled in compliance with ruling of the commission:

Texas Buckhorn Station, Tulsa; C. M. Johnson Tourist Camp, Vinita; Bill Proctor Tourist Inn, Sapulpa and Earl Luker, Sapulpa; Hearings have been set for May 31.

Citations against the following for hearing June 3 have been made.

W. V. French of Nowata; Nowata Oil Gasoline Co., Economy Service Station of Nowata, J. C. Smith of Beggs, Burl Jones Motor Co. of Mounds, J. W. Hill of Henryetta Couch and Woodford of Cody's Bluff and Fisher store near Sand Springs.

The Sooner State Oil & Gas Co. Oklahoma City, recently was cited by the commission for failure to have naphtha inspecting according to law, and a fine of $75 and costs was assessed in each of two counts.

Another case now awaiting decision by the commission is that of S. P. Kemensky, Oklahoma City, charged with failure to label "inferior motor fuel."

Mid-Continent Refinery Markets

Gasoline Markets Show Improvement

Staff Special

TULSA, May 21

GASOLINE markets in the Mid-Continent experienced some improvement late in the week of May 16 to 21 after several days of light demand. While prices had not been affected prior to close of business May 21, after slight declines early in the week, demand nevertheless was sufficiently improved to have taken most of the slack out of the market.

The better demand came both from jobbers and from inter-refinery buying although the latter was not as heavy as had been the case in previous weeks. The buying was sufficient, however, to give several refiners much needed relief and to prevent any quantity of gasoline from being "dumped" in the open market.

Several refiners reported the increase in jobber buying was accompanied by requests for rush shipment. This was taken as an indication weather conditions had improved rapidly in the middle west, stimulating consumption more rapidly than had been anticipated and that jobbers were getting low on stocks.

The higher gravity gasolines were in light demand. This was attributed in part to the season of the year and also to the fact that stabilized natural gasoline had become more of a factor in the domestic motor fuel market.

Natural gasoline was sluggish most of the week although a slight improvement was noted in Oklahoma May 20 and 21. Buying of stabilized grades continued to be the feature of this market. Demand for Grade 26-70, however, was still below current production and occasional offerings of distress material were reported.

Kerosine demand has declined rapidly in the past few days. With production failing to keep pace with this decreased demand stocks have begun to increase at a few plants, and the result had been a lowering of quotations in the hope of getting a portion of the business still existing.

Several refiners in Oklahoma reported the lower prices, however, had failed to stimulate buying. This was believed to be an indication farmers had about completed their spring work with tractors and that kerosine would fade from the picture until early next fall.

Distillate demand was light as was to be expected this season of the year. Prices eased off slightly in the course of the week. A few refiners were preparing their distillate contracts for next season but little actual business was reported to have been written to date.

Gas oils held their ground fairly well. This was due to some extent to the inter-refinery buying of this commodity for cracking. Inquiries have begun to come into the Mid-Continent for zero gas oil for next season and the few refiners having this product have been busy preparing their contract forms for next winter.

Fuel oil demand was steady in most quarters. In north Texas fuel oil was extremely scarce for open market shipment. Virtually all the current output has been contracted and a few refiners have been obtaining attractive prices for their oil when sold in tank truck lots to drilling contractors.

Bright stock demand showed some improvement although no changes were made in prices. One refinery sales manager said he had attributed some of the increased demand to the desire on the part of buyers to "get under cover" before a federal tax was placed on the commodity.

Neutral oils were generally unchanged. Reports were heard of price shading in an instance or two but a diligent check failed to reveal any price reductions this week.

Wax was in light demand and quotations in one or two spots were slightly lower.

THE lubrication and passenger car capacity chart for 1932, put out annually by National Petroleum News, has been brought up to date to include the new Ford V-8, the Nash models, and all other changes announced in the various makes of cars since the first of the year.

The chart includes capacities of cooling systems, gasoline tanks, crankcases, transmissions and differentials of 106 makes and models of passenger cars; also grease capacities of free wheeling unit; S. A. E. viscosity numbers for winter and summer grades of motor oils; and location of oil fill pipes.

Reprints, suitable for hanging on service station and lubritorium walls, are available on 6-ply cardboard, printed in green and black.

Prices, postpaid up to 50 copies, are: 50 cents each, in lots of 10 or less; 40 cents each, for 11 to 20 copies; 37.5 cents each, for 21 to 50 copies. Prices are scaled down for larger quantities and may be obtained by writing this publication at 1213 West Third St., Cleveland, O.

Charts may also be had with company's own imprint, slogan or trade-mark at small additional cost.

Orders for the standard chart must be accompanied by cash or check. All orders will be filled promptly.

Chicago Tank Car Market

Following prices represent majority of sales to jobbers on Group 3 freight basis, although shipments may originate in other refining districts, such as North, West and East Texas, Louisiana, Arkansas Indiana, Illinois, Kentucky, etc.

	Prices May 23	Prices May 16	Prices May 9
50-52, 437 e.p. naphtha	4.25 – 4.50	4.375– 4.50	4.50 – 4.625
U. S. Motor Gasoline:			
Below 57 octane number	4.375– 4.50	4.375– 4.625	4.625– 4.875
57-65 octane number	4.75 – 5.00	4.75 – 5.125	5.00 – 5.375
Above 65 octane number	5.00 – 5.25	5.125– 5.375	5.25 – 5.75
60-62 400 e.p. gasoline:			
Below 57 octane number	4.50 – 4.625	4.50 – 4.75	4.75 – 5.00
57-65 octane number	4.875– 5.25	4.875– 5.25	5.125– 5.50
Above 65 octane number	5.125– 5.375	5.125– 5.625	5.375– 5.875
64-66 375 e.p. gasoline	4.75 – 5.00	4.875– 5.125	5.00 – 5.25
68-70 350-360 e.p. gasoline	4.875– 5.125	5.00 – 5.25	5.125– 5.375
*Domestic Aviation Gasoline, below 73 octane number	5.125– 5.50	5.375– 5.75	6.00
41-43 w.w. kerosine	3.75 – 4.00	3.875– 4.125	4.125– 4.25
42-44 w.w. kerosine	3.875– 4.125	4.125– 4.25	4.25 – 4.50
38-40 p. w. distillate	2.125– 2.25	2.125– 2.25	2.125– 2.25
38-40 straw distillate	2.00 – 2.125	2.00 – 2.125	2.00 – 2.125
32-36 ordinary dark gas oil	1.25	1.25	1.25
32-36 dark zero gas oil	1.75	1.75	1.75
32-36 straw zero gas oil	1.875– 2.00	1.875– 2.00	1.875– 2.00
28-30 zero fuel oil (per bbl.)	$0.525–$0.575	$0.525–$0.55	$0.525–$0.55
28-30 fuel oil (per bbl.)	$0.425–$0.475	$0.425–$0.475	$0.425–$0.475
24-26 fuel oil (per bbl.)	$0.35 –$0.40	$0.325–$0.35	$0.325–$0.35
18-22 fuel oil (per bbl.)	$0.225–$0.275	$0.225–$0.25	$0.225–$0.25
18-22 zero fuel oil (per bbl.)	$0.275–$0.325	$0.275–$0.30	$0.275–$0.30
14-16 fuel oil (per bbl.)	$0.20 –$0.225	$0.20 –$0.225	$0.20 –$0.225

Naphtha and Solvent

Tank car prices for naphthas and solvents quoted by Chicago sellers are:

	May 23		May 16	
	F.O.B. Group 3 Basis	F.O.B. Chicago District	F.O.B. Group 3 Basis	F.O.B. Chicago District
Stoddard Solvent	5.25 – 5.75	7.00 – 9.00	5.25 – 5.75	7.00 – 9.00
V.M. & P. Naphtha	5.50 – 6.25	7.50 – 8.50	5.75 – 6.25	7.50 – 8.50
Cleaners Naphtha	6.00 – 6.50	9.00	6.00 – 6.50	9.00
Oleum Spirits	4.75 – 5.25	6.00 – 7.00	4.75 – 5.25	6.00 – 7.00
Rubber Solvent	6.00 – 6.25	10.00	6.25	10.00
Lacquer Diluent	7.50 – 8.50	12.50	7.75 – 8.50	12.50

*Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at 122°-167°F.; 50% at 221°; 90% at 311°; 96% at 347°; end point 374°F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

Former Richfield Officials Sentenced for Theft

LOS ANGELES, May 20—Three former high officials of the Richfield Oil Co., J. A. Talbot, chairman of the board of directors; C. M. Fuller, president; and R. W. McKee, vice-president and controller; were sentenced to two to twenty years in San Quentin prison, following conviction on charges of embezzling corporation funds.

Trial by jury had been waived by the defendants at the start of the proceedings and the ruling was made by Superior Judge L. R. Yankwich who characterized the crime as betrayal of trust "upon which the stability of the modern economic and social world depends."

Motions for a new trial and pleas for release on bail pending decision on their appeal for a new trial were denied.

Fuller, convicted of six counts of grand theft, totaling $130,325, was sentenced to serve 1 to 10 years on each of counts No. 3 and 4, while the sentences on the other counts were ordered to run concurrently with the sentence on No. 4.

Talbot was convicted on two counts of grand theft, amounting to $100,000 received a 2 to 20 year sentence, as did McKee, who had been found guilty of grand theft on one count at the recent trial. McKee also pleaded guilty to three additional counts in a second indictment not tried in the case just concluded.

Taxes, They're Always With Us

INDIANOLA, Miss.—"We are struggling with the Mississippi state sales tax," groans the Gresham Service Station here. "A very difficult tax to pass on to the consumer. Think efforts should be made to enlist motorists in asking for and demanding reduction in gasoline taxes."

How about it, readers?

Continue Legal Skirmishes In Texas Ouster Suit

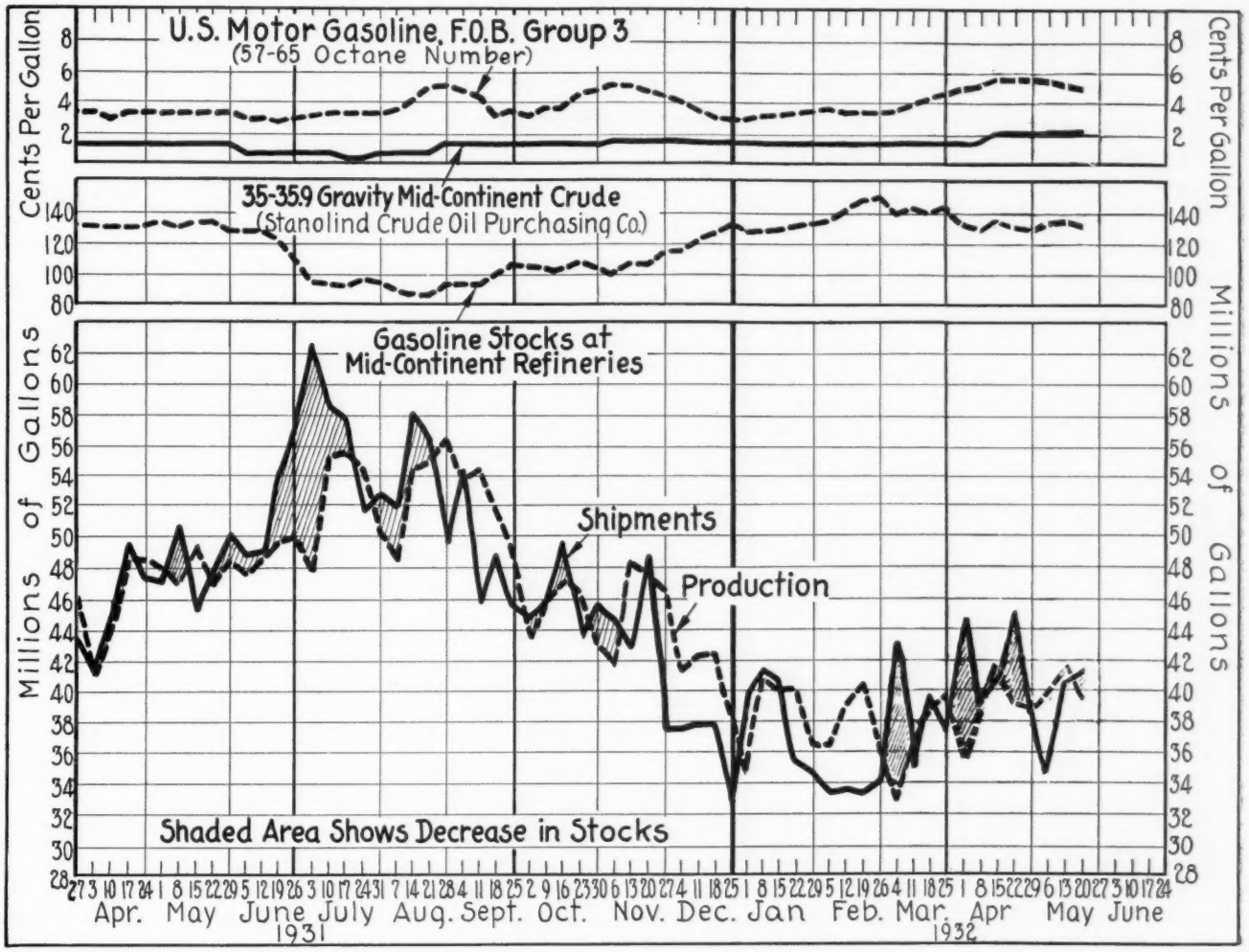
AUSTIN, May 23.—Hearing on special exceptions to the second amended petition of Attorney General James V. Allred, who is attempting to cancel charters of 15 major oil companies and two petroleum associations and collect fines totaling $17,500,000 will be held May 26.

The hearing was originally scheduled for May 23, but was postponed three days to permit many of the attorneys in the case to attend the State Democratic convention on that date.

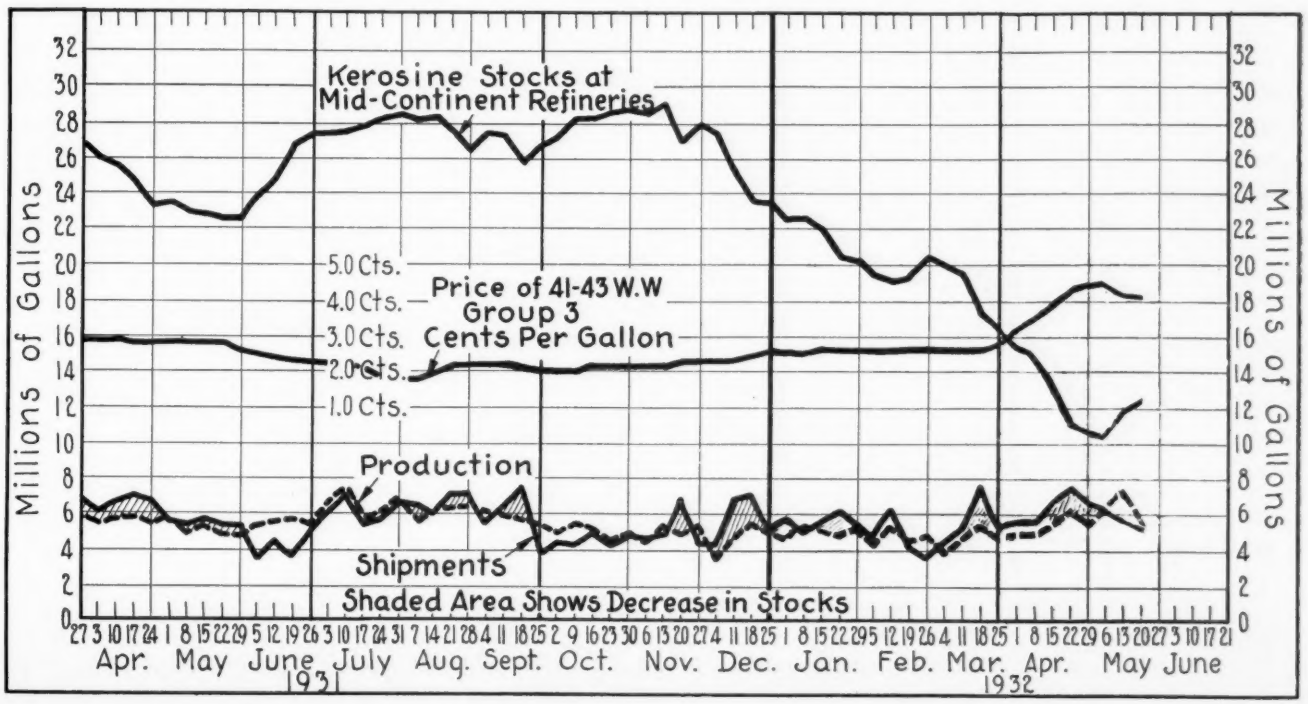
Depositions from officials of The Texas Co. given before George Shelley, special commissioner appointed by Judge J. D. Moore, were concluded on May 13.

Barometer of Mid-Continent Refinery Market—Week Ending May 20

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, from Reports Made by 39 Plants to National Petroleum News



Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 42



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown, in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices May 23	Prices May 16	Prices May 9
30-52 450 e.p. naphtha	4.50 – 4.75	4.75	4.75
U. S. Motor Gasoline			
Below 57 octane number	4.50 – 4.75	4.625– 4.75	4.75 – 5.00
57-65 octane number	5.00 – 5.25	5.25	†5.25 – 5.50
Above 65 octane number	5.25 – 5.50	5.50	†5.50 – 5.75
60-62, 400 E.P. Gasoline			
Below 57 octane number	4.50 – 4.875	4.625– 5.00	4.875– 5.25
57-65 octane number	5.125– 5.375	5.375– 5.50	5.375– 5.625
Above 65 octane number	5.375– 5.625	5.625– 5.75	†5.625– 5.875
64-66, 375 E.P. Gasoline	5.125– 5.25	5.25	5.25
68-70 350-360 e.p. gasoline	5.25 – 5.375	5.375	5.375
‡Domestic Aviation Gasoline, below 73 Octane number	5.125– 5.50	6.00	6.00

‡Prices based on U. S. Gov't. specifications or better. Present Gov t. specifications require distillation range of 5% recovery at 122°-167°F.; 50% at 221°; 90% at 311°; 96% at 347°; end point, 374°F. Fighting grade in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

52-54 Naphtha	6.375– 6.50	6.375– 6.50	6.00 – 6.125
54-56 Naphtha	6.50 – 6.625	6.50 – 6.625	6.125– 6.25
U. S. Motor (58-62°)	6.50 – 6.75	6.50 – 6.75	6.375– 6.625
64-66 390 e.p. gasoline	6.625– 6.875	6.625– 6.875	6.625– 6.875
68-70 350-360 e.p.	6.875– 7.00	6.875– 7.00	6.875– 7.00

OHIO (Quotations of S. O. Ohio. 4c state tax to be added. Delivered any point in Ohio.)

U. S. Motor Gasoline	8.25	8.25	8.25
60-65 Octane number	8.50	8.50	8.50

KANSAS (F. o. b. refinery, Kansas destination)

U. S. Motor Gasoline			
Below 57 octane number	4.75 – 5.00	4.875– 5.125	4.875– 5.125
57-65 octane number	5.25 – 5.50	5.375– 5.625	5.375– 5.625
Above 65 octane number	5.50 – 5.75	5.625– 5.875	5.625– 5.875
60-62 400 e.p. gasoline	5.00 – 5.25	5.125– 5.375	5.125– 5.375
64-66 375 e.p. gasoline	5.375	5.375– 5.625	5.375– 5.625

NORTH TEXAS (F. o. b. North Texas refineries)

U. S. Motor Gasoline			
Below 57 octane number	4.50 – 4.75	4.50 – 4.75	4.75 – 5.00
57-65 octane number	4.875– 5.125	4.875– 5.125	5.25 – 5.50
Above 65 octane number	5.00 – 5.25	5.125– 5.25	5.375– 5.625
60-62 400 e.p. gasoline	4.625– 4.875	4.75 – 5.00	5.00 – 5.25
64-66 390 e.p. gasoline	5.00 – 5.25	5.00 – 5.25	5.25 – 5.375
64-66 375 e.p. gasoline	5.00 – 5.25	5.00 – 5.25	5.25 – 5.375
68-70 350-360 e.p. gasoline	5.25	5.25	5.375– 5.50

WEST TEXAS (F. o. b. West Texas refinery, for unrestricted shipment)

U. S. Motor Gasoline			
Below 57 Octane number	4.50 – 4.75	4.50 – 4.75	4.875– 5.00
57-65 Octane number	4.75 – 5.00	5.00 – 5.25	5.375– 5.50
Above 65 Octane number	5.125– 5.25	5.25 – 5.50	5.50 – 5.75

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

U. S. Motor Gasoline			
Below 57 Octane number	4.875	5.25	5.25
57 65 Octane number	5.25	5.625	5.625
Above 65 Octane number	5.50	5.875	5.875

ARKANSAS (Ark., N. La., and Miss. destination)

U. S. Motor Gasoline			
Below 57 Octane number	4.875	5.25	5.25
57-65 Octane number	5.25	5.625	5.625
Above 65 Octane number	5.50	5.875	5.875

†Prices Nominal. ††Only one refiner quoting. *Quotations only.

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

	Prices May 23	Prices May 16	Prices May 9
54-58 U.S. Motor 437 e.p.	4.75 – 7.00	5.00 – 7.50	5.00 – 7.50
54-58 U.S. Motor, for outside state shipment	4.75 – 6.00	4.75 – 6.00	4.75 – 6.00
42-45 Engine Distillate 445-480 e.p.	5.00 – 6.00	5.00 – 6.00	5.00 – 6.00

NATURAL GASOLINE

OKLAHOMA (F. o. b. Group 3)

‡Grade 26-70	1.875– 2.00	1.875	2.00

NORTH TEXAS (F. o. b. Breckenridge)

‡Grade 26-70	1.75 – 1.875	1.875	2.00

CALIFORNIA (F. o. b. California refineries)

75-85, 375-390 e.p. for blending	4.75 – 5.25	4.50 – 5.25	4.50 – 5.25

‡On inquiries for other grades of natural gasoline, majority of manufacturers quote prices 10 to 15% above or below Grade 26-70 for each 4 pounds difference in vapor pressure between the grade desired and that of Grade 26-70.

BURNING OILS

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

45 w.w. kerosine	4.875– 5.125	5.00 – 5.125	4.875– 5.00
46 w.w. kerosine	5.00 – 5.25	5.00 – 5.25	5.00 – 5.125
47 w.w. kerosine	5.25 – 5.50	5.25 – 5.50	5.125– 5.375

OKLAHOMA (F. o. b. Oklahoma refineries)

41-43 w.w. kerosine	3.875– 4.25	4.125– 4.25	4.25 – 4.50
42-44 w.w. kerosine	4.00 – 4.375	4.25 – 4.50	4.50 – 4.625

KANSAS (F. o. b. refinery Kansas destination)

41-43 w.w. kerosine	4.375– 4.50	4.375– 4.50	4.50 – 4.625
42-44 w.w. kerosine	4.50 – 4.625	4.50 – 4.625	4.625– 4.875

NORTH TEXAS (F. o. b. North Texas refineries)

41-43 w.w. kerosine	3.875– 4.125	4.125	4.25 – 4.50

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosine	4.25	4.50	4.50

ARKANSAS (Ark., N. La. and Miss. destination)

41-43 w.w. kerosine	4.25	4.50	4.50

CALIFORNIA (F. o. b. California refineries)

8-40 w.w. kerosine	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00

NEUTRAL OIL

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)
Viscous Neutrals

Vis.	(Viscosity at 70° F.)		
200 No. 3 color, 420-425 flash:			
Zero pour test	22.00 –23.00	22.00 –23.00	22.00 –23.00
10 pour test	21.00 –22.00	21.00 –22.00	21.00 –22.00
15 pour test	19.00 –20.00	19.00 –20.00	19.00 –20.00
25 pour test	17.25 –18.00	17.50 –18.00	17.50 –18.00
30 pour test	17.00 –17.50	17.25 –17.50	17.25 –17.50
180 No. 3 color, 410-415 flash:			
25 pour test	15.00 –16.00	15.00 –16.00	15.00 –16.00
150 No. 3 color, 400-405 flash:			
Zero pour test	14.50 –16.00	14.50 –16.00	14.50 –16.00
10 pour test	14.00 –15.00	14.00 –15.00	14.00 –15.00
15 pour test	13.50 –14.50	13.50 –14.50	13.50 –14.50
25 pour test	12.00 –12.50	12.25 –12.50	12.25 –12.50
30 pour test	12.00 –12.25	12.00 –12.25	12.00 –12.25

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

****MID-CONTINENT** (F. o. b. Mid-Continent refineries)

Vis. Color	Prices May 23 (Viscosity at 100° F.) 0 to 10 Pour Point	15 to 30 Pour Point	Prices May 16 0 to 10 Pour Point	15 to 30 Pour Point
100—No. 2	4.50	4.00 – 4.25	4.50	4.00 – 4.25
150—No. 3	6.50	6.25	6.50	6.25
150—No. 4	6.00 – 6.25	5.75 – 6.00	6.00 – 6.25	5.75 – 6.00
180—No. 3	7.75	7.25 – 7.50	7.75	7.25 – 7.50
180—No. 4	7.25 – 7.50	7.00 – 7.25	7.25 – 7.50	7.00 – 7.25
180—No. 5	7.00 – 7.25	6.75 – 7.00	7.00 – 7.25	6.75 – 7.00
200—No. 3	8.50	8.00	8.50	8.00
200—No. 4	8.25	7.50 – 7.75	8.25	7.50 – 7.75
200—No. 5	7.75	7.25	7.75	7.25
220—No. 3	9.25 – 9.50	9.00	9.25 – 9.50	9.00
220—No. 4	9.00 – 9.25	8.50 – 8.75	9.00 – 9.25	8.50 – 8.75
220—No. 5	8.75 – 9.00	8.50	8.75 – 9.00	8.50
240—No. 3	10.00 –10.50	9.50	10.00 –10.50	9.50
240—No. 4	9.50 – 9.75	9.00 – 9.25	9.50 – 9.75	9.00 – 9.25
240—No. 5	9.50	9.00	9.50	9.00
280—No. 3	11.50 –11.75	11.00	11.50 –11.75	11.00
280—No. 4	10.50 –11.00	10.00 –10.50	10.50 –11.00	10.00 –10.50
280—No. 5	10.75	10.25	10.75	10.25

SOUTH TEXAS (F. o. b. South Texas refineries)

Vis. Color	Prices May 23 (Viscosity at 100° F., pour test 0)	Prices May 16	Prices May 9
200—No. 3 Pale	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
300—No. 3 Pale	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
500—No. 3½ Pale	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75
750—No. 4 Pale	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
1200—No. 4 Pale	8.75 – 9.00	8.75 – 9.00	8.75 – 9.00
200—No. 5½ Red Oil	5.50 – 6.00	5.50 – 6.00	5.75 – 6.00
300—No. 5½ Red Oil	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
500—No. 6 Red Oil	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
750—No. 6 Red Oil	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
1200—No. 5-6 Red Oil	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50

Note: Red oil prices shown above cover oils with blue cast; one or two refiners ask 0.5c to 1c per gallon higher for green cast red oils.

CALIFORNIA (F. o. b. California refineries)

Vis. Color	(Viscosity at 100° F.)		
100—No. 3	8.00	8.00	8.00
200—No. 3	8.00	8.00	8.00
300—No. 3	8.50	8.50	8.50
450—No. 3	10.00	10.00	10.00
550—No. 3	11.00	11.00	11.00
600—No. 3	11.50	11.50	11.50
200—No. 5	8.00	8.00	8.00
300—No. 5	8.50	8.50	8.50
400—No. 5	9.50	9.50	9.50
500—No. 5	10.50	10.50	10.50
600—No. 5	11.50	11.50	11.50
700—No. 7	12.50	12.50	12.50

CYLINDER STOCKS

MID-CONTINENT (F. o. b. Mid-Continent refineries)

(Prices represent quotations and sales).

190-200 Vis. D at 210° Brt. St.	22.00	22.00	23.00
150-160 Vis. D at 210° Brt. St.:			
0-10 cold test	21.00	21.00	21.00
10-25 cold test	20.50	20.50	20.50
25-40 cold test	20.00	20.00	20.00
150-160 Vis. E 210° Brt. St.	20.00	20.00	19.50
600 St. Ref. Olive Green	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00
600 St. Ref. Dark Green	3.50 – 4.00	3.50 – 4.00	3.50 – 4.00
Black Oil	2.00 – 2.25	2.00 – 2.25	2.00 – 2.25

PENNSYLVANIA (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

600 Steam Refined, filterable	14.00 –14.50	14.00 –14.50	14.00 –14.50
650 Steam Refined	16.50 –17.00	16.50 –17.00	16.50 –17.00
600 Flash	17.50 –18.00	17.50 –18.00	17.50 –18.00
630 Flash	22.50 –23.00	22.50 –23.00	22.50 –23.00
600 Warren E	16.75 –17.25	16.75 –17.25	16.75 –17.25
Bright Stock, No. 8 color, 140-150 vis. at 210°, 540-550 flash:			
10 pour test	27.50 –28.50	27.50 –28.50	27.50 –28.50
15 pour test	25.00 –26.00	25.00 –26.00	25.00 –26.00
25 pour test	24.00 –24.50	24.00 –24.50	24.00 –24.50
35 pour test	23.50 –24.00	23.50 –24.00	23.50 –24.00
45 pour test	.....	Discontinued	††23.50

WAX

PENNSYLVANIA (Per pound, F. o. b. New York)

122-124 white crude scale a.m.p.	1.875– 2.00	1.95 – 2.00	1.95 – 2.00
124-126 white crude scale, a.m.p.	2.00 – 2.125	2.00 – 2.25	2.00 – 2.25

††Only one refiner quoting. †Prices Nominal.

****OKLAHOMA** (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries.)

	Prices May 23	Prices May 16	Prices May 9
124-126 White Crude Scale, a.m.p.	1.75 – 2.00	1.75 – 2.00	1.75 – 2.00

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50

OKLAHOMA (F. o. b. Oklahoma refineries)

38-40 straw distillate	2.125– 2.25	2.125– 2.25	2.25
36-38 straw distillate	2.00 – 2.125	2.00 – 2.125	2.125
32-36 straw gas oil	1.375– 1.50	1.375– 1.50	1.375– 1.50
32-36 straw gas oil zero	1.875– 2.00	1.875– 2.00	1.875– 2.00
32-36 dark gas oil	1.375	1.375– 1.50	1.375– 1.50
32-36 dark gas oil zero	1.875– 2.00	1.875– 2.00	1.875– 2.00
28-30 fuel oil, zero (per bbl.)	$0.55	$0.55	$0.55
28-30 fuel oil (per bbl.)	$0.475	$0.475	$0.475
26-28 fuel oil (per bbl.)	$0.45 –$0.475	$0.45 –$0.475	$0.45 –$0.475
24-26 fuel oil (per bbl.)	$0.425–$0.45	$0.425–$0.45	$0.45
22-26 fuel oil (per bbl.)	$0.425	$0.425	$0.425
18-22 fuel oil (per bbl.)	$0.40	$0.40	$0.40
16-20 fuel oil (per bbl.)	$0.375–$0.40	$0.375–$0.40	$0.375–$0.40
14-16 fuel oil (per bbl.)	†$0.375	†$0.375	†$0.375

KANSAS (F. o. b. refinery Kansas destination)

38-40 straw distillate	2.50 – 2.625	2.50 – 2.75	2.75 – 2.875
36-38 straw distillate	2.375– 2.50	2.375– 2.50	2.50 – 2.625
32-36 straw gas oil	2.25 – 2.375	2.25 – 2.375	2.25 – 2.50
18-22 fuel oil (per bbl.)	$0.40 –$0.45	$0.40 –$0.45	$0.40 –$0.45
10-14 fuel oil (per bbl.)	$0.30 –$0.35	$0.35 –$0.40	$0.35 –$0.40

NORTH TEXAS (F. o. b. North Texas refineries)

38-40 straw distillate	2.125– 2.25	2.125– 2.25	2.25 – 2.375
38-40 p.w. treated distillate	2.375	2.375	2.375– 2.50
32-36 gas oil, cracked	1.75 – 1.875	1.75 – 1.875	1.875– 2.00
32-36 St. reduced gas oil	1.375– 1.50	1.375– 1.50	1.375– 1.50
24-26 fuel oil (per bbl.)	$0.50	$0.50	$0.50
20-24 fuel oil (per bbl.)	$0.45	$0.45	$0.45
18-22 fuel oil (per bbl.)	$0.40	$0.40	$0.40

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

30-32 gas oil	1.625– 1.875	1.625– 1.875	1.625– 1.75
28-30 gas oil, zero	1.625– 1.875	1.625– 1.875	1.625– 1.75
18-22 fuel oil (per bbl.)	$0.35 –$0.40	$0.35 –$0.40	$0.35 –$0.40

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil	2.00	2.00	2.00
32-36 gas oil, zero	2.25	2.25	2.25
14-16 fuel oil (per bbl.)	$0.35 –$0.40	$0.375–$0.45	$0.375–$0.45

ARKANSAS (Ark., N. La. and Miss. destination)

32-36 gas oil	2.00	2.00	2.00
32-36 gas oil, zero	2.25	2.25	2.25
28-30 gas oil	2.00	2.00	2.00
20-24 fuel oil (per bbl.)	$0.45 –$0.50	$0.45 –$0.50	$0.45 –$0.50
9-12 fuel oil (per bbl.)	$0.375	$0.35 –$0.375	$0.35 –$0.375

CALIFORNIA (F. o. b. refinery.)

14-18 fuel oil (per bbl.)	$0.40 –$0.55	$0.40 –$0.55	$0.40 –$0.55
14-18 Bunker oil (per bbl.)	$0.55 –$0.65	$0.55 –$0.65	$0.55 –$0.70
30-34 gas oil (per bbl.)	$0.65 –$0.85	$0.65 –$0.85	$0.70 –$0.90
27 Plus Diesel oil (per bbl.)	$0.65 –$0.85	$0.65 –$0.85	$0.70 –$0.85

PETROLATUMS

PENNSYLVANIA (Per pound, in barrels, carload lots, f. o. b. Penna. refinery. In tank cars ½c to ¾c per pound less.) Quotations are from majority of refiners.

Snow White	6.00 – 7.00	6.00 – 7.00	6.00 – 7.00
Lily White	5.00 – 6.00	5.00 – 6.00	5.00 – 6.00
Cream White	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00
Light Amber	2.25 – 2.75	2.25 – 2.75	2.25 – 2.75
Amber	1.875– 2.25	1.875– 2.25	1.875– 2.25
Red	1.75 – 2.00	1.75 – 2.00	1.75 – 2.00

PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

(Per ton in car lots)

Lump	$3.00 –$4.00	$3.00 –$4.00	$3.00 –$4.00
Still run	$2.00	$2.00	$2.00
Breeze	$0.75 –$1.00	$0.75 –$1.00	$0.75 –$1.00

*Quotations only. **Prices represent quotations and sales.

New Refining Patents

Removal of Chlorides, Sulfides From Crude Oil. U. S. P. 1 838 031, Dec. 22, 1931, application filed Dec. 13, 1927; Reginald K. Stratford, Gordon McIntyre and Herbert H. Moore, assignors to Standard Oil Development Co.

BY REMOVING corrosive impurities from crude oil or its fractions prior to distillation, there is gained the double advantage of preventing damage to metal equipment by corrosion, and of preparing the oil to yield an excellent quality of gasoline.

For this purpose an improved method and apparatus have been developed for continuous treatment of crude oil, lubricants and the like with hot aqueous caustic. The stream of crude to be purified is heated with the alkali solution under pressure, the alkali solution is settled out, and the oil is piped without further treating to a still. If the method is applied to a petroleum distillate, the distillate may be passed, while still hot from the distillation, to the alkali treatment and then directly to another distillation.

What Is Claimed

Removing chlorides, free sulfur and hydrogen sulfide from crude oil by heating a continuous stream of mixed crude oil and alkali solution under pressure, below the cracking temperature of the oil, reducing the pressure but still keeping it above atmospheric, continuously passing the mixture through enlarged zones whereby impurities settle out, and distilling the purified oil.

* * *

Decolorizing Lubricants In Vapor Phase. U. S. P. 1 839 388, Jan. 5, 1932, application filed Feb. 7, 1928; Thomas T. Gray, assignor to Gray Processes Corp.

VAPOR phase decolorization of lubricating oils with adsorbent clays or fullers earth has not hitherto been successfully accomplished in sufficient yield to be profitable. This is probably because of insufficient time of contact and because the process has been carried out as nearly as possible without condensation.

It has now been found that if hot liquid oil is trickled over the adsorbent at the same time that the vapor is being passed through it, a greatly improved decolorizing effect is obtained. The liquid may be supplied to the adsorbent by permitting partial condensation of the vapor, or from an extraneous source. The effect obtained depends largely on the fact that the coloring matter to be removed is much more soluble in hot than in cold liquid oil. The service life of the adsorbent is much prolonged by carrying the impurities away in the liquid oil instead of allowing them to be deposited on the solid adsorbent.

What Is Claimed

Decolorizing lubricants by passage in vapor phase through a bed of solid adsorbent and at the same time utilizing like lubricating oil in liquid phase to wash out the coloring matter deposited in the decolorizing agent.

* * *

Oil Filter. U. S. P. 1 839 892, Jan. 5, 1932, application filed April 29, 1930; Arthur E. Pew, Jr., assignor to Sun Oil Co.

IN THE oil filter construction in which a cylindrical head is attached to the bottom of a filter and has within it a concentric perforated ring to provide an outflow space for the filtered liquid, the ring having a screen within it and being entirely filled with a filter medium, there has hitherto been no effective means to prevent leakage of filter medium into the outflow space.

In order to gain the full advantage of this very efficient type of filter head without the losses due to leakage, a new welded construction has been designed which effectually prevents leakage of filter clay past the ring as long as the screen is not punctured. The ring is welded to the head at top and bottom, and the screen is lapped over the ring at the top and held on by a retaining ring.

What Is Claimed

In a filter, an orificed ring within the head and spaced therefrom to form an annular fluid outflow space, a screen on the inner face of the ring, a flange extending inward from the head and engaging one end of the ring at its outer face to form an end wall for the outflow space, the flange being welded to the ring at the junction of the ring end and the outer corner of the flange.

* * *

Lubricants From Crude Oil. U. S. P. 1 836 947, Dec. 15, 1931, application filed June 1, 1926; Winfield S. Zehrung.

IN A NEW improved process for producing lubricants from crude oil, the finished product is obtained much more quickly and directly than in prior practice, and operating costs are lowered by the elimination of certain steps which are required in older methods.

The crude oil is distilled in presence of a solid adsorbent, under temperature conditions which do not cause cracking. The oil is first mixed with the adsorbent earth in a mixer, in proportions previously ascertained to be effective, and is then distilled to remove the fractions lighter than the desired lubricants. The vapor is withdrawn, and the residual mixture of oil and adsorbent is pumped to a filter press. The filtrate is suitable for use as such, or if desired it may be further refined by known methods.

What Is Claimed

Producing a filtered or partially decolorized lubricating oil and simultaneously separating lighter fractions directly from a crude oil by heating the oil in admixture with a solid adsorbent powder in a restricted stream at a temperature, proportionate to the speed of the stream and sufficient to vaporize the lighter fractions without causing cracking, directing the restricted stream to an enlarged zone to permit escape of the vaporized portion without the aid of steam, removing the residue and separating the lubricant from the adsorbent.

* * *

Paraffin Recovery. U. S. P. 1 847-488, March 1, 1932, application filed May 17, 1924 and in Germany June 28, 1923; Hans Olof Lindgren and Knut Gustaf Malm, assignors to the De Laval Separator Co.

PRIOR practice in dewaxing lubricating oils has either required distillations which impaired the viscosity of the oil, or tedious and inefficient sedmentation treatments which added materially to the production costs and did not give satisfactorily low cold tests in the final product. There have also been difficulties in converting the paraffin into marketable form.

Improved procedures have now been developed for dewaxing oils by chilling, centrifuging, diluting and centrifuging again; this is repeated, the higher melting paraffins being precipitated in the first stage, then a lower melting fraction, and so on. The new process is economical because it is applied directly to the crude oil. Three different procedures are specified: one is designed to produce a lubricant with low cold test and a high melting paraffin; one is a treatment for making crystalline paraffin from amorphous paraffin materials, and the third is a treatment for refining crude amorphous paraffin to produce a high melting amorphous paraffin. Thus the kind of paraffin produced can be changed according to market demand.

What is Claimed

Separating paraffin from oils by diluting, chilling to precipitate part of the paraffin, separating the precipitate by centrifuging from a lighter specific gravity constituent containing the remaining paraffin and other hydrocarbons, chilling, centrifuging to separate the second paraffin precipiate from the lighter, paraffin-free liquid, diluting the second paraffin mass and centrifuging to separate paraffin from a lighter paraffin-free liquid, and in the foregoing operation using the lighter constituent from a later centrifuging as diluent for an earlier centrifuging, and using the

paraffin mass from a later centrifuging to facilitate separation of paraffin mass from the locus of centrifuging in an earlier centrifuging, distilling one paraffin mass to convert it to crystalline paraffin, and separating the crystalline paraffin by diluting, chilling and centrifuging.

* * *

Petroleum Chemicals, U. S. P. 1 844 208, Feb. 9, 1932, application filed March 30, 1928, and 1 844 209-10-11, Feb. 9, 1932, application filed Feb. 24, 1925 and in Germany Feb. 23, 1926; divided and these three applications filed March 28, 1930; Harold S. Davis, assignor to Petroleum Chemical Corp. (1 844 208); Harold S. Davis and Wallace J. Murray, assignors to Petroleum Chemical Corp. (1 844 209-10-11).

As a means of utilizing the olefines which are formed as by-products in the cracking of heavy oils, procedures have been developed for selective absorption in acid to give inorganic acid esters, which can then be hydrolyzed to yield alcohols corresponding to the olefines chosen for selective treatment.

Optimum conditions of acid concentration, etc., have been worked out for obtaining isopropyl alcohol from propylene, butyl and amyl alcohols from the butylenes and amylenes. For example, for making isopropyl alcohol, it has been found that 100% sulfuric acid is much more effective than 90% acid. This is of prime importance in keeping down costs, since acid consumption is one of the chief cost items.

What Is Claimed

1 844 208: Making acid absorption products from olefine gases containing propylene and less easily absorbed gases, at 30°C. or less, with sulfuric acid initially of 100% concentration, by effecting repeated contact between the gases and films of the acid to form an absorption product which is stable against spontaneous polymerization at normal temperatures.

1 844 209: Making tertiary amyl alcohol from a mixture of secondary and tertiary olefines by fractionating to obtain a fraction containing chiefly secondary and tertiary amylenes, and selectively sulfating the tertiary olefines.

1 844 210: Making isopropyl alcohol from a mixture of olefines up to amylenes by fractionating to obtain a fraction containing only ethylene and propylene, and selectively sulfating the propylene with aqueous sulfuric acid under suitable conditions of temperature and concentration to form propyl sulfate.

1 844 211: Making tertiary butyl and amyl alcohols from a mixture of secondary and tertiary olefines, by fractionating to obtain a fraction consisting of secondary and tertiary butylenes, or secondary and tertiary amylenes, and selectively sulfating the tertiary olefines to obtain the desired alcohol.

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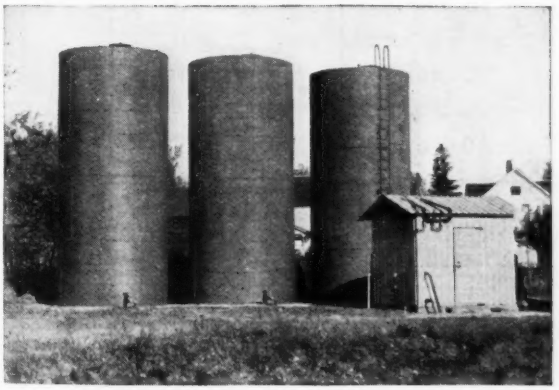

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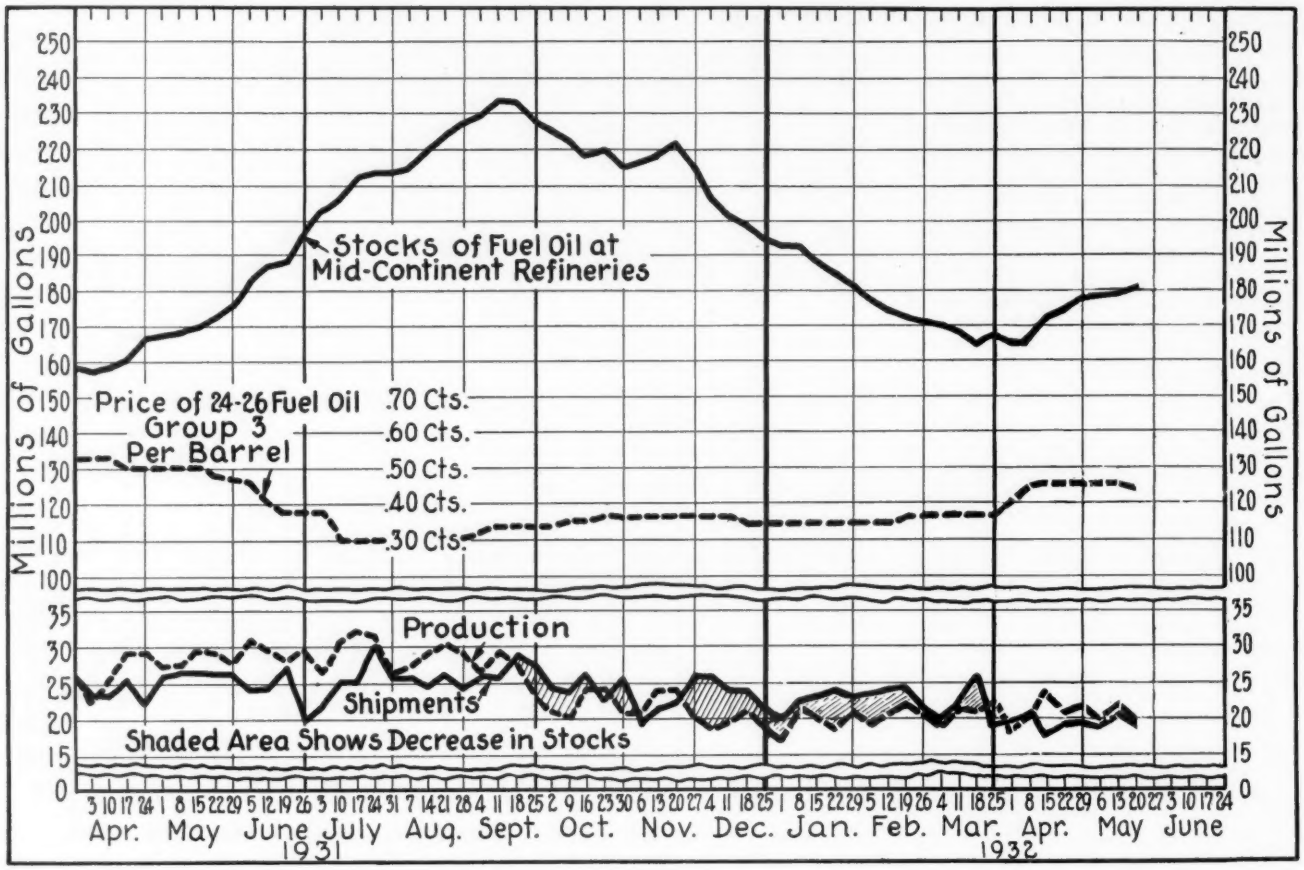
Barometer of Mid-Continent Refinery Market—Week Ending May 20

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, from Reports Made by 39 Plants to National Petroleum News



California Refinery Market

Prices Show Little Change

LOS ANGELES, May 21

ALTHOUGH reports of probable revisions in Pacific Coast crude oil and gasoline price schedules were prevalent, market quotations remained practically unchanged the past week.

Exporters received numerous inquiries for prices on bulk gasoline from both east coast and Atlantic foreign buyers but actual sales were lacking. In contrast to the offered prices of 4.25 to 4.5 cents, local suppliers were reported holding out for higher returns.

Several California companies have quantities of gasoline on hand, available for export, but are reluctant to offer or make a sale that would impair eastern tank car markets. In the absence of actual spot sales, traders were at a loss to indicate even nominal quotations although they believed the range would be above 4.5 cents for a 65 octane product.

A buyer in Chili inquired for quotations on about 20,000 barrels of U. S. Motor gasoline for June delivery. The gasoline is to be shipped in returnable drums. Quotations were expected to be in the neighborhod of 6 to 6.25 cents a gallon f.o.b. the dock, exclusive of freight and drum charges.

Domestic gasoline markets were unstable in the face of reports that tank wagon price schedules might be reduced to offset independent competition. However, others discounted this action at a time when Government bids for Pacific Coast gasoline needs are about to be opened.

Quotations on tank car and tank-truck and trailer movement of gasoline within the state ranged from 7.75 to 10 cents, inclusive of tax. Within the week major companies increased the discount to dealers to 2 cents on third grade gasoline and to 4 cents on the regular and Ethyl grades. These discounts are made to 100 per cent accounts and are 1 cent less to split accounts.

Retail prices in the Los Angeles Basin ranged from 9.9 cents at the larger independent resellers to 11 cents on major third grade and to 14 cents on regular white products.

Movement of California gasoline into Arizona, Utah, and Nevada was slow. Quotations ranged from 4.75 cents up.

Practically no change was noted in quotations on heavy oils. Natural gasoline was in slightly better demand with quotations at 4.75 to 5.25 cents.

Ford Cooling Capacity

CLEVELAND, May 23—The cooling capacity of the 4-cylinder Ford is 12 quarts and not 19 quarts as was reported on advice of the Ford factory in the April issue on Page 59. The 12-quart figure is given in the Ford instruction books which have been printed. The V8 Ford has a cooling capacity of 22 quarts, unchanged from previous reports.

Pennsylvania Markets

More Gasoline Offered

CLEVELAND, May 23.—The Pennsylvania market marked time in the week ended May 21. Trading continued relatively light. Prices, however, were steady and despite the general inactivity the market was devoid of distress offerings.

Gasoline remained in about the best position of any commodity in the market. Movement was sufficient to hold the market for U. S. Motor at 6.5 to 6.75 cents but there was not the scarcity of offerings that has been apparent in recent weeks. Several refiners who have been short of gasoline for some time past reported production was more in line with demand. This was probably due partly to the fact that seaboard prices are more attractive to the usual buyer of Pennsylvania gasoline, that is, for comparable grades of gasoline.

Kerosine was the only commodity to show any recession in price and here the ground lost was virtually negligible. Demand has fallen off considerably and although there was no surplus hanging over the market, several sellers reduced prices 0.125 cent to see if they couldn't stimulate movement of current production.

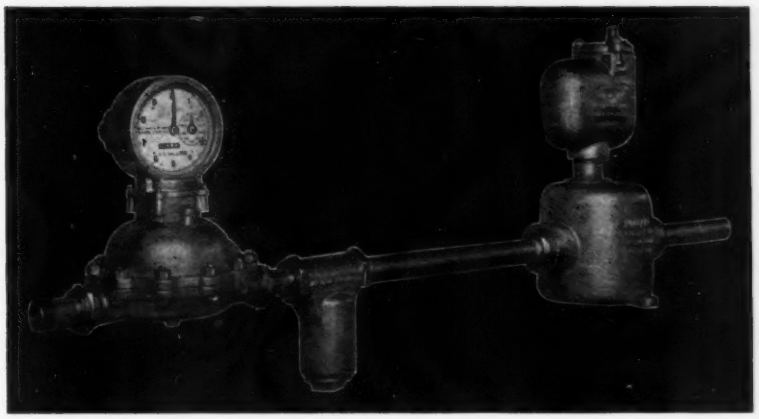
Fuel oil remained in good shape. Refiners with cracking units continued to absorb practically all of the current output and only in the lower part of the field, where refiners are dependent largely upon industrial activity, were offerings in excess of the demand. Even in that area, however, prices were well maintained.

Buyers showed little interest in lubricating oils. Bright stock prices were steady with volume in storage reported the lowest it has been in the last two years. Neutral oils were plentiful. Several refiners reported a notable increase in inquiries for motor oils.

Cut Short Haul Rail Rates in Kansas

WICHITA, May 21.—The new intrastate rail rates requested by the Kansas railroads to meet truck competition, and which have been approved by the Interstate Commerce Commission, to become effective May 26 are as follows:

Under 10 miles 7c per 100 pounds; 10 to 20 miles 7.5c; 20 to 30 miles 8.5c; 30 to 40 miles 9c; 40 to 50 miles 10c; 50 to 60 miles 10.5c; 60 to 70 miles 11.5c; 70 to 80 miles 12c; 80 to 90 miles 13c; 90 to 100 miles 13.5c; 100 to 110 miles 14.5c; 110 to 120 miles 15c; 120 to 130 miles 16c and 140 to 150 miles 17.5c.



This NIAGARA METER Assembly Measures Oil Deliveries Accurately

The ideal way to deliver gasoline or oil in 25 to 500 gallon dumps is to measure by meter. But to do this accurately, you need more than just a meter. *Four* things are necessary:

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4. **Correct Installation**

The Niagara Tank Truck Metering Assembly of Meter, Strainer and Air Release Valve fulfills every requirement, both of customers and Sealers of Weights and Measures. The patented Niagara Air Release Valve removes air and bubbles; the Niagara Strainer traps out tank scale and foreign matter. Without these, accurate measurement is impossible. But when you use the complete Niagara Tank Truck Metering Assembly, installed as directed in our catalog, you have a combination that has stood the test of time and has never failed!

If you are interested in accurate metering at moderate cost, write us today.

Niagara Oil Meters

BUFFALO METER COMPANY

2889 Main Street Buffalo, N. Y.

"MERCHANDISING of PETROLEUM PRODUCTS"

by R. H. Thomas

Contains practical help for the oil salesman, agent, service station operator and particularly valuable to the man just starting in business.

The book is divided into five parts: 1—Helps for Agents; 2—Service Station Salesmen; 3—Oil Salesman and his Duties; 4—Complaints; 5—Questions and Answers.

It goes into methods of studying possibilities of your territory and making your own canvass of farm machinery on individual farms. How the agent and salesman can coordinate their efforts to develop new business and give the service that holds accounts. How the market for other products than gasoline and motor oil can be worked up. Selling through service stations. Handling of complaints and other marketing problems.

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NATIONAL PETROLEUM NEWS, 1213 West Third St., Cleveland, Ohio

Eastern Domestic Markets

T. C. Prices Unhurt By New York City Cut

Staff Special
NEW YORK, May 21

EASTERN gasoline markets featured a sharp drop in tank wagon and service station prices in metropolitan New York during the week ended May 21. Standard Oil Co. of New York reduced service station prices 4 cents and tank wagon prices 2 cents both to 9.5 cents, exclusive of state tax, in the five boroughs and in the southern section of Westchester County.

The reason given for the reduction was the wide margins prevailing under the posted prices for tank wagon deliveries. The selling of 8 gallons for $1.00 including the tax has prevailed in the market for some time. Margins to dealers have been 5 cents under the posted tank wagon prices whereas the policy proclaimed by the Standard has been 3 cents margin.

Tank car suppliers at New York harbor continued to make sales at 6.75 cents for gasoline shipped into markets where higher retail prices prevail. Shipments were reported good in the direction of upper New York State where on May 18 the New York Standard advanced tank wagon and service station prices 1 cent to 13.5 and 14.5 cents, respectively.

While many jobbers were inclined to withhold buying at this writing, sellers were not inclined to reduce their quotations at New York harbor.

The Philadelphia and Baltimore markets were quiet due to the volume purchased late in April for shipment over the month of May. Prices, however, remained at 6.75 cents for tank car lots. Buying was slow in both markets.

Wholesale gasoline prices underwent a decline of 0.25 cent in New England markets. Providence and Boston were quoted at 6.75 cents for gasoline below 65 octane and 7 cents for the higher octane material. The latter price also prevailed in Portland.

Retail heating oil prices were revised downward in the Boston area during the week. Prices for No. 1 oil were lowered to 7 cents, or within 0.5 cent of No. 2 oil which is 6.5 cents. Some suppliers have revised their contracts to dealers allowing 1.5 cent margin under retail price but not to be lower than 4.25 cents, which is the spot tank car price of No. 2 oil.

Prices for bunker oil, grade C, remained at 0.75 per barrel at New York, Philadelphia and Boston. The market for this oil generally was reported to be steady. Diesel oil was quoted at $1.5 at New York harbor.

Cargo lots of bunker oil were scarce in the Gulf. Prices were generally reported ranging from $0.50 per barrel and upward. A foreign buyer was in the market for a cargo of bunker C but no sale has been reported. Little interest was manifested in the gas oil market. One cargo of gas oil which would meet No. 2 heating oil specifications was reported available but buyers showed little interest in prompt shipments. Sellers' ideas of prices ranged from 3.25 cents upward for this grade of oil.

Cargo lots of gasoline were not offered under 5.25 cents at the Gulf. California suppliers were asking 4.5 cents for cargo lots. No buying interest was reported in either market.

Wax Markets

Scale Sells Lower

NEW YORK, May 21.—Trading in scale waxes at New York and New Orleans was generally at 1.875 cents per pound during the week ended May 21. While the majority of sales of white scale were made at 1.875 cents, some sales were reported at 1.85c and 1.8 cents in both markets. Demand for scale waxes improved considerably.

The fully refined grades were quoted at unchanged prices. Buying was slow, according to most traders.

Court Finds Way to Tax Oil from Indian Land

TULSA, May 21.—Oil produced from Indian lands in one county but stored in another is subject to ad valorem taxes, according to an opinion handed down by the state supreme court.

The decision reverses those of district judges in both Tulsa and Stillwater and actions instituted by the Indian Territory Illuminating Oil Co.

The opinion in the Tulsa county case declared the district court had erred in holding that the storage tanks were exempt from ad valorem taxation subsequently imposed upon them. Justice Matthews added that "if the oil sought to be taxed . . . .had been stored on the premises from which it had been produced, and if it had not been separated from the portion belonging to the lessor, it would be exempt from ad valorem taxation."

The opinion by Justice Kornegay directs the Payne county district court to reverse its order striking two assessments against the I. T. I. O. for $169,386 worth of oil in school district No. 102, and $214,322 in school district No. 91.

Move to Tax Tank Truck Hauling in Okla.

OKLAHOMA CITY, May 21.—A distributor of petroleum products who charges one price at his place of business, and a higher price when he transports the commodity to another location is subject to a license fee and a tax of 0.5 cent per mile traveled, the Oklahoma Tax Commission has decided. The commission is basing its decision on the Motor Vehicle Act, and takes the stand the distributor becomes a "Class 'C' Carrier." A carrier under this classification is subject to the tax of $10 and the per mile traveled, round trip mileage.

The commission has also based its claim on a decision of the supreme court in a case handed down Feb. 12, 1932.

This stand by the commission on the "dock" and "delivery" price may make the gasoline distributor a "transporter for hire."

Michigan Production Man Dies

CHICAGO, May 23.—Oscar Davis, manager of the crude production and land departments of the Johnson Oil Refining Co. in Michigan, died May 21 at Mercy Hospital in Muskegon.

Mr. Davis became associated with Johnson Oil Refining when the Muskegon field was brought in, in 1928, and has been in charge of its interests there since. Prior to his going to Michigan, Mr. Davis was a drilling contractor in the Mid-Continent, residing at Iola, Kans.

Shell Changes Ohio Manager

CLEVELAND, May 23.—J. G. Jordan has been appointed division manager in charge of sales in Ohio for the Shell Petroleum Corp. He succeeds Dan E. Lavin. Mr. Lavin has been promoted to the main office in St. Louis. Mr. Jordan formerly was in the St. Louis office, and recently was moved to Cleveland as the assistant division manager.

On The Lazy Bench

What! He Doesn't Play A Sax?

Advertiser in a village paper in California sets out the following enticements:

"Know all men by these presents, that I, Shadrack H. Armstrong, have gasoline for sale at 15c a gal. Some say it ain't good gas, but I say it is.

"I will also tie your broom corn, one-half for the other. I crush corn every Thursday.

"Turkeys picked very promptly every day in the week.

"Horseshoeing a specialty at 6 bits a round.

"Watch and pistol repairing guaranteed.

"Shoes half-soled while you wait.

"Umbrellas fixt, and ax handles made for 15c.

"Will teach Southern harmony and the fiddle combine for $3 mo.

"Pictures enlarged by a new process and my hot tamale and hair-oil recipe goes 330 days for 25c per head.

"Hair cutting only on Sat. eve. at 25c per.

"A good stripper cow for sale.

"Also agent for agricultural implements and newspapers."

* * *

The Moon and The Tied

He: "Does the moon affect the tide?"

She: "No, only the untied."

—Pure Oil News
Pure Oil Co.

* * *

It Does Fatten

"Now, Willie, what happens to a man who thinks only of his body and not of his soul?"

"Please, teacher, he gets fat."

—The Gas Line
West Penn Oil Co.

* * *

Detailed Report

The superintendent had severely criticized the trainmaster for laxity in reporting accidents, impressing upon him the fact that it was very necessary to report by wire immediately anything that appeared to be an accident, no matter how trivial it might seem, without waiting for details.

Only a few days later, the superintendent received the following wire: "Man fell off platform in front of engine." To which the superintendent wired: "Advise details." The trainmaster replied: "No one hurt; engine was standing still."

—The Vent
Gilbert & Barker Mfg. Co.

* * *

And as the colored doorman ran down to open the limousine door, he tripped and rolled down the last four steps. "For heaven's sake be careful" cried the club manager. "They'll think you're a member."

—Union Oil Bulletin
Union Oil Co. of California

"You will be very fortunate to secure FREEDOM Distribution"

WROTE ONE JOBBER TO ANOTHER...

THIS is what one Freedom jobber (name on request) wrote to another jobber who was contemplating taking on the Freedom line. In this brief endorsement, he expressed the complete satisfaction that is typical of the 700-odd jobbers who market Freedom 100% Pennsylvania Motor Oils under their own brand name or one of our brands.

If you want to distribute as fine a line of oils as ever flowed from a still... if you know the value of quality motor lubricants in building and holding trade... if you want to reap the extra profits that our jobber-friends everywhere are reporting... we invite you to become our customer.

We will make up motor oils (Sharples Process) to your own specifications. Or if you prefer, we will recommend tested specifications of this 52-year-old organization. We also would like to tell you about our especially attractive agreement covering exclusive territory on our "Fort Pitt" and "Beaver Penn" brands for jobbers.

Shipments can be made as quickly as you like in tank cars, compartment tank cars or in barrels or drums, carload lots. Your request for full information and quotations will receive immediate attention.

THE FREEDOM OIL WORKS CO.
120 Third St., Freedom, Pa.
Refineries at FREEDOM and CORAOPOLIS, PA.

Some of Our Specialties

145 Viscosity Sharples Bright Stock
85/90 Viscosity Sharples Bright Stock
100% Pennsylvania Neutrals
600 Steam Refined
650 Steam Refined
600 Flash Steam Refined
630 Flash Steam Refined
Freedom Filtered Kerosene Oil

FREEDOM

100% PENNSYLVANIA OILS

100% PURE PENNSYLVANIA OIL

Permit No. 31

Complete Seaboard Market

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of sales and quotations. Prices shown below do not include inspection tax levied in Florida and South Carolina.)

	Prices May 23	Prices May 16	Prices May 9
U. S. MOTOR GASOLINE:			
Below 65 Octane Number			
New York harbor	6.75	6.75	6.50 – 6.75
Boston	6.75 – 7.00	7.00 – 7.25	6.75 – 7.00
Providence	6.75 – 7.00	7.00 – 7.25	6.75 – 7.00
Philadelphia district	6.75	6.75	6.50 – 6.75
Baltimore district	6.75	6.75	6.50 – 6.75
Norfolk district	6.75 – 7.00	6.75 – 7.00	6.50 – 6.75
Charleston district	6.75 – 7.00	6.75 – 7.00	6.50 – 6.75
Savannah district	6.75 – 7.00	6.75 – 7.00	6.50 – 6.75
Jacksonville district	6.75 – 7.00	6.75 – 7.00	6.50 – 6.75
MOTOR GASOLINE:			
65 Octane Number and Above			
New York harbor	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
Portland district	7.00 – 7.25	7.25 – 7.50	7.25 – 7.50
Boston district	7.00 – 7.25	7.25 – 7.50	7.00 – 7.25
Providence district	7.00 – 7.25	7.25 – 7.50	7.00 – 7.25
Philadelphia district	6.75 – 7.00	6.75 – 7.00	6.50 – 6.75
Baltimore district	6.75 – 7.00	6.75 – 7.00	6.50 – 6.75
Norfolk district	7.00 – 7.25	7.00 – 7.25	6.75 – 7.00
Charleston district	7.00 – 7.25	7.00 – 7.25	6.75 – 7.00
Savannah district	7.00 – 7.25	7.00 – 7.25	6.75 – 7.00
Jacksonville district	7.00 – 7.25	7.00 – 7.25	6.75 – 7.00
†DOMESTIC AVIATION GASOLINE:			
Below 73 Octane Number			
New York harbor	9.00 –10.00	9.00 –10.00	9.00 –10.00
Philadelphia	9.00 –10.00	9.00 –10.00	9.00 –10.00
Baltimore	9.00 –10.00	9.00 –10.00	9.00 –10.00
Boston	9.00 –10.00	9.00 –10.00	9.00 –10.00
73 Octane Number and Above (Octane determination basis 300°F; 600 R.P.M.)			
New York harbor	11.00 –12.00	11.00 –12.00	11.00 –12.00
Philadelphia	11.00 –12.00	11.00 –12.00	11.00 –12.00
Baltimore	11.00 –12.00	11.00 –12.00	11.00 –12.00
Boston	11.00 –12.00	11.00 –12.00	11.00 –12.00

†Prices based on U. S. Gov't. specifications or better. Distillation range, recovery points: 5% at 167°F.; 50% at 221; 90% at 311; 96% at 347; end point, 374°F. Prices for fighting grade gasoline in some instances higher. Prices represent majority of quotations.

WATER WHITE KEROSINE			
New York harbor	5.50	5.50	5.50
Philadelphia district	5.50	5.50	5.50
Baltimore district	5.50	5.50	5.50
Boston district	5.75	5.75	5.50 – 5.75
BURNING OILS:			
New York harbor:			
Furnace oil No. 1	5.00	5.00	5.00
Heating oil No. 2	4.00	4.00	4.00
Distillate oil No. 3	4.00	4.00	4.00
Industrial oil No. 4	3.50	3.50	3.50
Philadelphia District:			
Furnace oil No. 1	5.00	5.00	5.00
Heating oil No. 2	4.00	4.00	4.00
Distillate oil No. 3	4.00	4.00	4.00
Boston district:			
Furnace oil No. 1	5.00	5.00	5.00
Heating oil No. 2	4.25	4.25	4.25
Distillate oil No. 3	4.00	4.00	4.00
Industrial oil No. 4	3.50 – 4.00	3.50 – 4.00	3.50 – 4.00
GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)			
New York harbor	$0.75	$0.75	$0.65
Philadelphia district	$0.75	$0.75	$0.70
Boston district	$0.75	$0.75	$0.60
DIESEL OIL			
New York harbor	$1.50	$1.50	$1.30
GAS OIL: 28-34 Gravity			
New York harbor	3.75	3.75	.....
Philadelphia district	3.75	3.75	.....

New York Export Market

(Lubricating oils in cents per gal. in bbls. F.a.s. New York, except where otherwise noted. Paraffin oil prices represent bulk shipment in tankers f.a.s. New York.)

	May 23	May 16	May 9
CYLINDER OILS (Pennsylvania Products)			
Bright stock, No. 8 color	31.00 –32.00	31.00 –32.00	30.00 –31.00
Bright stock, No. 6½ color diluted	30.00 –31.00	30.00 –31.00	29.00 –30.00
600 D filtered	26.00 –28.00	25.00 –26.00	25.00 –26.00
600 Warren E filtered	23.00 –24.00	23.00 –24.00	23.00 –24.00
600 stm. refd. unfiltered	20.00 –21.00	20.50 –21.00	20.00 –21.00
650 stm. refd. unfiltered	22.50 –23.00	22.50 –23.00	22.50 –23.50
600 flash steam refined	23.00 –24.00	23.50 –24.00	23.00 –24.00
630 flash, steam refined	28.00 –29.50	28.00 –29.00	27.50 –28.50
RED PARAFFIN OILS (Vis. 100°)			
300 vis. No. 6½ color	9.50	9.50	9.50
250 vis. No. 6 color	9.00	9.00	9.00
200 vis. No. 6 color	8.25	8.25	8.25
PALE PARAFFIN OILS	**(Vis. 100°)**		
230 vis. No. 3½ color	10.00	10.00	10.00
180 vis. No. 3¼ color	9.50	9.50	9.50
100 vis. No. 2¼ color	5.00	5.00	5.00

Wax Market

(Prices in cents per pound, f. a. s. carload lots. Tests made by A. S. T. M. method with melting points converted into A. M. P. by adding 3° F.)

NEW YORK	May 23	May 16	May 9
124-126 Yellow crude scale	1.80	1.875	1.875
122-124 White crude scale	1.875	1.875– 2.00	1.875– 2.00
124-126 White crude scale	1.875	1.875– 2.00	1.875– 2.00
123-125 Fully refined	3.00	3.00	3.00
125-127 Fully refined	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
128-130 Fully refined	3.25	3.25	3.25
130-132 Fully refined	3.375	3.375	3.375
133-135 Fully refined	4.00 – 4.125	4.00 – 4.125	4.00 – 4.125
135-137 Fully refined	4.25	4.25	4.25

NEW ORLEANS	May 23	May 16	May 9
124-126 Yellow crude scale	1.80	1.875	1.875
122-124 White crude scale	1.875	1.875– 2.00	1.875– 2.00
124-126 White crude scale	1.875	1.875– 2.00	1.875– 2.00
123-125 Fully refined	3.00	3.00	3.00
125-127 Fully refined	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
128-130 Fully refined	3.125– 3.25	3.125– 3.25	3.125– 3.25
130-132 Fully refined	3.375	3.375	3.375
133-135 Fully refined	4.125– 4.25	4.125– 4.25	4.125– 4.25

Gulf Coast Bulk Market

(Prices are f. o. b. Gulf oil terminals representing sellers' opinions except prices covering bulk shipments of 20,000 barrels or more, specified to the contrary, unless otherwise noted.)

	Prices May 23	Prices May 16	Prices May 9
For Domestic Shipment			
U. S. MOTOR GASOLINE:			
Below 65 octane number	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
65 octane number and above	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75
KEROSINE			
41-43 w.w.	4.50	4.50	4.50
For Export Shipment			
GASOLINE			
U. S. Motor gasoline	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
60-62, 400 e.p. gasoline	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50
61-63, 390 e.p. gasoline	4.00 – 4.75	4.00 – 4.75	4.00 – 4.75
64-66, 375 e.p. gasoline	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00
U. S. Motor, (cases cargoes)	$1.50	$1.50	$1.50
64-66, cases (cargoes)	$1.60	$1.60	$1.60
KEROSINE			
41-43 water white	4.50	4.50	4.50
41-43 prime white	4.25	4.25	4.25
Water white, cases (cargoes)	$1.40	$1.40	$1.40
Prime white, cases (cargoes)	$1.30	$1.30	$1.30
(For Domestic and/or Export Shipment)			
GAS and BUNKER OILS			
*26-30 translucent gas oil	3.00 – 3.125	3.00 – 3.125	†3.00
*30 plus translucent gas oil	3.25 – 3.375	3.25 – 3.375	†3.25
Grade C bunker oil, for ships' bunkers, per bbl.	$0.60	$0.60	$0.55
Grade C bunker oil, per bbl. in cargoes	$0.50 –$0.53	$0.50 –$0.53	$0.48 –$0.50

*Less than ½ of 1% sulphur. †Nominal.

MEXICAN CRUDE AND BUNKER OIL (f. o. b. steamer, Tampico)			
Heavy Panuco crude taxes to be paid, per bbl.	$0.48 –$0.50	$0.48 –$0.50	$0.48 –$0.50
Grade C bunker oil for bunkering, taxes paid, per bbl.	$0.65	$0.65	$0.60
SOUTH TEXAS LUBRICATING OILS (Viscosity at 100 F. cold test 0 Tanker, f. o. b. Gulf oil terminals.)			
200 vis. No. 3 unfiltered pale	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
300 vis. No. 3 unfiltered pale	6.25 – 6.75	6.25 – 6.75	6.25 – 6.75
500 vis. No. 3½ unfiltered pale	6.75 – 7.50	6.75 – 7.50	6.75 – 7.50
750 vis. No. 4 unfiltered pale	7.25 – 8.00	7.25 – 8.00	7.25 – 8.00
1200 vis. No. 4 unfiltered pale	8.00 – 9.00	8.00 – 9.00	8.00 – 9.00
200 vis. No. 5-6 red oil	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
300 vis. No. 5-6 red oil	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
500 vis. No. 5-6 red oil	6.25 – 6.75	6.25 – 6.75	6.25 – 6.75
750 vis. No. 5-6 red oil	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25
1200 vis. No. 5-6 red oil	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00

Pacific Export Market

(Quotations are at seaboard. Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	May 23	May 16	May 9
Gasoline, U. S. Motor, 53-55 Gravity	4.00 – 4.50	3.50 – 4.00	3.50 – 4.00
Gasoline, 400 e.p. blend 65 Octane No. and above	4.50 – 5.00	4.25 – 5.00	4.25 – 5.00
Gas oil, 30-34 per bbl.	$0.78 –$0.95	$0.80 –$0.95	$0.80 –$0.95
Diesel oil, 27 plus, per bbl.	$0.78 –$0.90	$0.80 –$0.90	$0.80 –$0.90
Bunker oil, 14-18 per bbl.	$0.56 –$0.70	$0.56 –$0.70	$0.56 –$0.70
Fuel oil, 14-18 per bbl.	$0.52 –$0.70	$0.52 –$0.70	$0.52 –$0.70
Kerosine, 38-40 w.w., 125-150 flash, per gal.	3.75 – 4.75	3.75 – 4.75	3.75 – 4.75
Cased Goods			
Gasoline, U. S. Motor	$1.35 –$1.50	$1.35 –$1.50	$1.35 –$1.50
Gasoline, 400 e.p. blend	$1.45 –$1.65	$1.45 –$1.65	$1.45 –$1.65
Kerosine, 38-40 w.w., 125-150 flash	$1.20 –$1.35	$1.20 –$1.35	$1.20 –$1.35
Kerosine, prime white	$1.00 –$1.15	$1.00 –$1.15	$1.00 –$1.15

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling) to U. S. ports, cents per barrel

	May 23			
	Crude &/or Fuel		Refined Oil &/or Spirits	
	Last Paid	Owners Ask	Last Paid	Owners Ask
Calif.-U.K./Continent*	15/6	15/-20/	17/6	17/-18/
Gulf-U.K./Continent*	8/6	8/6-10/	9/	9/-10/
Calif.-N. Atlantic (not E. of N. Y.)	30c	40-45c	40c	40-45c
Gulf-N. Atlantic** (not E. of N. Y.)	15c	15–16c	15c	16–18c

*Continental ports in range between Bordeaux and Hamburg, both inclusive.
**Venezuela loading same rate; Tampico, 2 to 3c per bbl. additional.

New Stations Building

Note: Material used in this column is taken principally from newspapers. [illegible] NEWS assumes no responsibility for its accuracy. Headquarters of companies and addresses of individuals are given wherever possible.

The list as published from week to week cannot be looked upon as indicative of the relative extent to which stations are being built in various parts of the country.

Service Stations

Winona, Minn.—Chris Nissen.
Osage City, Kans.—Martin Fager.
Neilsville, Wis.—John Hunter.
Sullivan, Ind.—Edgar C. Pope.
Winona, Minn.—Harry E. Conrad.
Bowling Green, O.—Ohio Oil Co., Findlay, O. seeks permit.
Aztec, N. M. — J. T. Chambers, service station and tourist cabins.
Ellsworth, Wis. — Pierce County Farmers Union Cooperative Oil Co.
Madison, Wis. — C. C. Johnson.
Middletown, O. — Roy Snyder seeks permit.
Columbia, S. C.—Super-Test Oil Co., 1023 Lady St., building station here. May build more later.
Concord, N. H. — Aranosian Oil Co., West Concord, N. H.
Bowling Green, Ky. — B. O. Mason, Box 26, says he is building service station "in various places, depending on capital."
Nebraska City, Neb. — Nebraska Super-Service Association, new company, building super service stations.
Princeton, Mo.—E. E. Baker.
Pittsburg, Kan.—Fred Cote.
O'Neill, Neb.—Mr. Conrad and Mr. Lowery, Chambers, Neb.
New Haven, Conn. — Albert Earnest, seeks permit for station at 19 Elm st.
Memphis, Tenn.—Producers & Refiners Corp., 635 N. Front St.
Scandinavia, Wis. — Harold Bergman.
Springfield, O.—Ohio Oil Co., Findlay, O.
LaCrosse, Wis.—Standard Oil Co., of Indiana, 910 South Michigan Ave., Chicago, Ill.
Kansas City, Mo.—Frank Cessna, c/o Mainstreet Theater.
Holdingford, Minn.—National Refining Co., National Bldg., Cleveland, O.
St. Paul, Minn.—Standard Oil Co., 3rd and Commercial Sts.
Monroe City, Mo.—White Mule Oil Co.
Farwell, Tex.—Sunshine Oil Co., 609 E. 8th St., Topeka, Kans.
Canton, O.—B. F. Rowland.
Richmond, Ind.—Phillips Petroleum Co., Bartlesville, Okla.
Ellsworth, Wis.—Athol Hulverson.
Greencastle, Ind.—Charles H Cook.

Bulk Stations

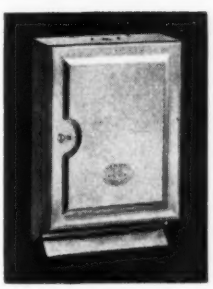
Marshall, Ill.—Standard Oil Co., of Indiana, 910 South Michigan ave., Chicago, Ill.
Albert Lea, Minn. — Northland Oil Co., 309 Bridge St., building trackage stations at Albert Lea and Walters, Minn.
Holdingford, Minn.—National Refining Co., National Bldg., Cleveland, O.
Paducah, Ky. — Gulf Refining Co., Frick Bldg. Annex, Pittsburgh, Pa.

DEEPWATER OIL TERMINALS, Inc.
L. F. Rothermel, Pres.
First National Bank Bldg. . . . Houston, Texas
CABLE ADDRESS "ROTHOIL"

Terminal and Warehousing Facilities
Refining, Blending and Barrelling
of Petroleum and its Products
Cans or Cargoes

PLANT ON HOUSTON SHIP CHANNEL

Consider these hygienic facts about your washrooms



Onliwon Cabinets protect tissue from dust and dirt

Physicians everywhere are continually warning people against harsh, inferior toilet papers. They're a distinct health-threat in your washrooms—a factor which is likely to cause many—particularly women—to avoid your stations. You can't afford to lose trade these days when you can economically install a safe, quality tissue. A.P.W. Onliwon. Swiftly absorbent, completely sanitary. Its texture is soft, yet strong enough so that fingers will not break through the tissue. Equip your stations with Onliwon Tissue along with its companion service, Onliwon Towels. Both are served from hygienic cabinets, and are guaranteed to give sanitary and satisfactory service to all your patrons. Always.

Pioneers for Cleanliness since 1877

A.P.W.
TRADE-MARK REGISTERED IN U. S. PATENT OFFICE

A. P. W. PAPER CO., Albany, N. Y. NPN-5-32

Please send me free of charge a sample supply of A. P. W. Onliwon Toilet Tissue and Towels, and the booklet which tells me why A. P. W. Onliwon Washroom Service is the most profitable investment which I can make for my service stations.

Name ..... *Address* .....
City ..... *State* .....

Tank Wagon, Service Station Markets for Gasoline and Kerosine

(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)

These Prices in Effect May 23, 1932, as Posted by Principal Marketing Companies

S. O. NEW JERSEY TERRITORY

Standard Gasoline	T.W.	Tax	Total T.W.	S.S.	Kerosine T.W.
Atlantic City, N. J.	13.4	3	16.4	16.9	11.2
Newark, N. J.	12.7	3	15.7	16.2	8.5
Annapolis, Md.	13	4	17	17.5	10
Baltimore, Md.	12.4	4	16.4	16.9	7
Cumberland, Md.	13.9	4	17.9	18.4	11.7
Washington, D. C.	12.9	2	14.9	15.4	10
Danville, Va.	14.1	5	19.1	19.6	11.9
Norfolk, Va.	12.5	5	17.5	18	10.3
Petersburg, Va.	13.6	5	18.6	19.1	11.4
Richmond, Va.	12.9	5	17.9	18.4	10.7
Roanoke, Va.	14.1	5	19.1	19.6	11.9
Charleston, W. Va.	13.8	4	17.8	18.3	11.6
Parkersburg, W. Va.	12.4	4	16.4	16.9	10.2
Wheeling, W. Va.	13.4	4	17.4	17.9	11.2
Charlotte, N. C.	14.7	6	20.7	21.2	12.5
Hickory, N. C.	14.9	6	20.9	21.4	12.7
Mt. Airy, N. C.	15	6	21	22.5	12.8
Raleigh, N. C.	14.5	6	20.5	21	12.3
Salisbury, N. C.	14.8	6	20.8	21.3	12.6
Charleston, S. C.	12.5	6	18.5	19	10.3
Columbia, S. C.	14.4	6	20.4	20.9	12.2
Spartanburg, S. C.	14.7	6	20.7	21.2	12.5

Dealer Discount: gasoline, 2½c off retail t.w. price, except Maryland, New Jersey and Washington, D. C. where discount is 3½c.

Kerosine Discount: 1c off t.w. price for 25 gals. or more, under contract, thru territory except New Jersey, effective June 17, 1931.

S. O. NEW YORK

Socony Gasoline

Greater New York City: Boroughs of Manhattan, Bronx, Queens & Kings	9.5	3	12.5	12.5	9.5
Borough of Richmond	9.7	3	12.7	12.7	9.5
Albany, N. Y.	13	3	16	17	10
Buffalo, N. Y.	13.5	3	16.5	17.5	9
Rochester, N. Y.	13.5	3	16.5	17.5	9
Syracuse, N. Y.	13.5	3	16.5	17.5	9.5
Boston, Mass.	12.5	3	15.5	16.5	9
Augusta, Me.	13.8	4	17.8	18.8	9.5
Manchester, N. H.	13.4	4	17.4	19.4	9
Burlington, Vt.	14.3	4	18.3	19.3	9.5
New Haven, Conn.	13.6	2	15.6	16.6	9
Providence, R. I.	12.5	2	14.5	15.5	9

Dealer discount: on gasoline 2c off posted t.w. price, except 3c in New York City.

ATLANTIC REFINING

Atlantic White Flash Gasoline

Pittsburgh, Pa.	13	3	16	17	11
Philadelphia, Pa.	12	3	15	16	11
Allentown, Pa.	13	3	16	17	11
Erie, Pa.	13	3	16	17	11
Scranton, Pa.	13	3	16	17	11
Altoona, Pa.	13	3	16	17	11
Dover, Del.	13	3	16	17	11
Wilmington, Del.	13	3	16	17	11
Boston, Mass.	12.5	3	15.5	16.5	9
Springfield, Mass.	13.5	3	16.5	17.5	9
Worcester, Mass.	13.3	3	16.3	17.3	9
Fall River, Mass.	10.3	3	13.3	14.3	9
Providence, R. I.	12.5	2	14.5	15.5	9
Hartford, Conn.	13.5	2	15.5	16.5	9
New Haven, Conn.	13.6	2	15.6	16.6	9
Atlantic City, N. J.	13.4	3	16.4	16.9	11.2
Camden, N. J.	12.8	3	15.8	16.3	10.6
Trenton, N. J.	13.2	3	16.2	16.7	11
Annapolis, Md.	13	4	17	17.5	10
Baltimore, Md.	12.4	4	16.4	16.9	7
Hagerstown, Md.	13.6	4	17.6	18.1	10.7
Richmond, Va.	12.9	5	17.9	18.4	10.7
Wilmington, N. C.	12.6	6	18.6	19.1	10.4
Brunswick, Ga.	15	6	21	22	*14.5
Jacksonville, Fla.	11	7	18	19	10.5

Dealer discount: on gasoline, "split dealers," 2c off posted t.w. price; to 100% dealers, 2.5c; to authorized dealers (under lease 1c per gal.), 2.5c off posted s.s. price. Commercial accounts, under contract for one year, are sold at a discount off the posted prices, with due consideration to competition

*Georgia kerosine prices include 1c state tax

Latest Changes in Tank Wagon Prices

Gasoline

S. O. New York—T.w. and s.s. cut 1.8c, Syracuse, to 15.5c and 16.5c including 3c tax, **May 14;** up 1c, to 16.5c and 17.5c, **May 18.**

T.w. cut 2c, s.s. cut 4c, Greater New York City, both to 12.5c, Borough of Richmond, both to 12.7c, including 3c tax, **May 21.**

Atlantic Refining—T.w. and s.s. cut 2.2c, Fall River, to 13.3c and 14.3c, including 3c tax, **May 7.**

S. O. Ohio—X-70 t.w. up 1.5c, s.s. up 2c, through Scioto county, to 17.5c and 18c, Renown Green s.s. up 2c, to 16c, including 4c tax, **May 18.**

X-70 t.w. up ½c, s.s. up 1c, Renown Green s.s. up 1c, through Ashtabula, Columbiana, Mahoning, Portage, Summit and Trumbull counties, to 17.5c and 18c on X-70; 16c Renown Green, including 4c tax, **May 19.**

T.w. and s.s. up 1c through Butler county, both to 17c, including 4c tax, **May 19.**

X-70 t.w. cut ½c, s.s. 1c, through Hancock county, both to 17c, and Renown Green s.s. cut 1c, to 15c, including 4c tax, **May 23.**

S. O. Indiana—Red Crown s.s. only up 1.1c, Quincy, to 16.3c, including 3c tax, **May 9.** Stanolind Blue t.w. up 1.5c, s.s. up 3.8c, Quincy, both to normal at 14.8c, **May 9.**

Stanolind Blue t.w. only cut 1.5c, Joliet, to 13.5c, including 3c tax, **May 13.**

S. O. Nebraska—T.w. and s.s. up 1c, Scottsbluff, both to 18c, including 4c tax, **May 16.**

S. O. Louisiana—T.w. and s.s. cut ½c generally through territory, **May 23.**

Magnolia Petroleum—T.w. and s.s. up ½c, Fort Smith, both to 18.5c, including 4c tax, **May 9.**

Continental Oil—T.w. and s.s. up 3c, Butte, to 22c and 25c, including 5c tax, **May 18.**

Kerosine

Atlantic Refining—T.w. cut 1/10c, Atlantic City, to 11.2c, **May 2.**

S. O. Ohio—Up 1c generally through Ohio, to 12.5c t.w., **May 18.**

S. O. Louisiana—T.w. up ½c, Nashville, to 13c; up 2c, Memphis, to 11c; up 2.5c, Chattanooga, to 13.5c, **May 17.**

S. O. OHIO

	T.W.	Tax	Total T.W.	S.S.	Kerosine T.W.
Sohio X-70					
Ohio statewide	13.5	4	17.5	18	12.5
Franklin, Montgomery and Richland counties	12	4	16	16	12.5
Butler, Hancock and Lorain counties:	13	4	17	17	12.5
Renown Green (Third Grade)					
Ohio statewide				16	12.5
Franklin, Montgomery and Richland counties				14	12.5
Butler, Hancock and Lorain counties:				15	12.5

Dealer and commercial consumer discount: Sohio X-70 gasoline, 2c off t.w. price; Renown Green, 1.5c off s.s. price (sold to commercial consumers beginning March 7). Kerosine, 2.5c off t.w. in counties where prices are below statewide level, discount on Sohio X-70 gasoline is generally 2.5c.

S. O. KENTUCKY

Crown Gasoline					
Lexington, Ky.	13.5	5	18.5	19.5	10.5
Louisville, Ky.	12.5	5	17.5	18.5	10.5
Paducah, Ky.	13.5	5	18.5	19.5	8.5
Covington, Ky.	13.5	5	18.5	19.5	10.5
Jackson, Miss.	14	5.5	19.5	19.5	11.5
Vicksburg, Miss.	13.5	5.5	19	19	9.5
Birmingham, Ala.	15.5	*6	21.5	21.5	13
Mobile, Ala.	14.5	*7.5	22	22	10
Montgomery, Ala.	16	*7	23	23	14.5
Macon, Ga.	16	6	22	22	*13
Atlanta, Ga.	16	6	22	22	*11
Augusta, Ga.	16	6	22	22	*14.5
Savannah, Ga.	16	6	22	22	*13.5
Jacksonville, Fla.	12	7	19	19	10.5
Miami, Fla.	15	7	22	22	13.5
Tampa, Fla.	14	7	21	21	9.5
Pensacola, Fla.	12	*8	20	20	13.5
Kyso Green (Third Grade)					
Lexington, Ky.	11.5	5	16.5	16.5	10.5
Louisville, Ky.	10.5	5	15.5	15.5	10.5
Paducah, Ky.	11.5	5	16.5	16.5	8.5
Jackson, Miss.	10.75	5.5	16.25	16.25	11.5
Vicksburg, Miss.	10.25	5.5	15.75	15.75	9.5
Birmingham, Ala.	12.5	*6	18.5	18.5	13
Mobile, Ala.	12.5	*7.5	20	20	10
Montgomery, Ala.	13	*7	20	20	14.5
Atlanta, Ga.	11	6	17	17	*11
Augusta, Ga.	14	6	20	20	*14.5
Macon, Ga.	13	6	19	19	*13
Jacksonville, Fla.	10	7	17	17	10.5
Miami, Fla.	13	7	20	20	13.5
Pensacola, Fla.	11	7	18	18	13.5
Tampa, Fla.	12	7	19	19	9.5

Dealer discount: on Crown, and Crown Ethyl gasolines, 3c off t.w. price thru territory, except Kentucky 2c: Kyso Green discount is 2c thru territory.

Discount off t.w. price Kerosene at Atlanta 3c.

***Taxes:** in the state gasoline taxes at following points are included these city and county taxes: Birmingham, 1c city; Mobile, 1c city and 1.5c county; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia kerosine prices include 1c state tax. Montgomery kerosine price includes ½c city tax.

S. O. INDIANA

Standard Red Crown Gasoline					
Chicago, Ill.	13	3	16	16	10
Decatur, Ill.	13.5	3	16.5	16.5	10.1
E. St. Louis, Ill.	12.8	3	15.8	15.8	9.3
Joliet, Ill.	13.5	3	16.5	16.5	10.1
Peoria, Ill.	13.5	3	16.5	16.5	10.1
Quincy, Ill.	13.3	3	16.3	16.3	9.9
Springfield, Ill.	13.5	3	16.5	16.5	10.1
Indianapolis, Ind.	13.3	4	17.3	17.3	10.1
Evansville, Ind.	13.3	4	17.3	17.3	10.1
South Bend, Ind.	13.8	4	17.8	17.8	10.6
Detroit, Mich.	9.5	3	12.5	12.5	10.8
Grand Rapids, Mich.	13.6	3	16.6	16.6	10.5
Saginaw, Mich.	12.5	3	15.5	15.5	10.8
Marquette, Mich.	14	3	17	17	10.9
Green Bay, Wisc.	13.7	4	17.7	17.7	10.5
Madison, Wisc.	13.4	4	17.4	17.4	10.2
Milwaukee, Wisc.	13.2	4	17.2	17.2	10
La Crosse, Wisc.	14.3	4	18.3	18.3	11.1
Minneapolis, Minn.	14.3	3	17.3	17.3	11
Duluth, Minn.	14.6	3	17.6	17.6	11

Above prices include these inspection fees on both gasoline and kerosine, per gallon, figured on basis of 50 gallons per barrel:

Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel, 1/20c per gal. in bulk; Florida, 1/8c; Illinois, 3/100c; Indiana, 1/2c per gal. in a single barrel; 3/10c per gal. in lots of 2 to 10 bbls., 1/5c for 10 to 50 bbls., 2/25c for over 50 bbls.; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 2/25c; Nebraska, 3/50c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal. in lots of more than 50 bbls., 1.5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 1/25c.

Kerosine inspection fees only: Iowa, 2/25c; Michigan, 4/5c per gal. for first 2 bbls.; 3.5c for next 3; 2/5c for next 5; 3/10c for next 15; and 1.5c per gal. in lots over 25 bbls.

Tank Wagon, Service Station Markets for Gasoline and Kerosine

These Prices in Effect May 23, 1932, as Posted by Principal Marketing Companies

S. O. INDIANA (*Cont'd*)

	T.W.	Tax	Total T.W.	S.S.	Kerosine T.W.
Mankato, Minn.	14.2	3	17.2	17.2	10.8
Des Moines, Ia.	13.6	3	16.6	16.6	10.4
Davenport, Ia.	13.6	3	16.6	16.6	10.4
Sioux City, Ia.	13.2	3	16.2	16.2	10
Mason City, Ia.	13.6	3	16.6	15.7	10.4
St. Louis, Mo.	12.5	†3	15.5	15.5	9.4
Kansas City, Mo.	13	†3	16	16	8.7
St. Joseph, Mo.	12.6	†3	15.6	15.6	9.2
Fargo, N. D.	16	3	19	19	13
Grand Forks, N. D.	16.3	3	19.3	19.3	13.3
Minot, N. D.	16	3	19	19	13
Pierre, S. D.	14.1	4	18.1	18.1	11.5
Huron, S. D.	14.4	4	18.4	18.4	11.8
Wichita, Kans.	11.9	3	14.9	14.9	8.9
Bartlesville, Okla.	10.1	4	14.1	17	8.1

†Includes city tax of 1c.

Stanolind Blue Gasoline

Stanolind Blue prices are 1.5c per gal. under Red Crown, except at following points:

Chicago, Ill.	10.5	3	13.5	13.5	10
E. St. Louis, Ill.	11.3	3	14.3	11	9.3
Joliet, Ill.	10.5	3	13.5	13.5	10.1
Kansas City, Mo.	10	3	13	13	8.7
St. Joseph, Mo.	8	†3	11	11	9.2
St. Louis, Mo.	8.5	†3	11.5	11.5	9.4
Detroit, Mich.	8.5	3	11.5	11.5	10.8
Grand Rapids, Mich.	11.6	3	14.6	14.6	10.5
Saginaw, Mich.	10.5	3	13.5	13.5	10.8
Bartlesville, Okla.	8.6	4	12.6	14.1	8.1
Mankato, Minn.	12.7	3	15.7	13.5	10.8
Minneapolis, Minn.	10	3	13	13	11
Evansville, Ind.	11.8	4	15.8	15	10.1
Davenport, Ia.	12.1	3	15.1	11.9	10.4
Des Moines, Ia.	8.9	3	11.9	11.9	10.4
Mason City, Ia.	12.1	3	15.1	13.5	10.4
Sioux City, Ia.	9.9	3	12.9	12.9	10
Green Bay, Wisc.	13.2	3	16.2	13.5	10.5
La Crosse, Wisc.	12.3	4	16.3	16.3	11.1
Madison, Wisc.	11.9	4	15.9	15.3	10.2
Milwaukee, Wisc.	8.5	4	12.5	12.5	10
Huron, S. D.	10	4	14	15	11.8
Fargo, N. D.	14.5	3	17.5	16.6	13

†Includes city tax of 1c.

Discounts to resellers, except in Chicago: (Q.D.A. effective May 11, 1931): Off s.s. under 75,000 gals.: Ethyl: 3c, Red Crown 2.5c, Blue 1.5c. Off t.w. over 75,000 gals.: Ethyl 4c, Red Crown, 3.5c, Blue 2c. (See also last paragraph below).

Chicago reseller discounts: any quantity, Ethyl 4c, "regular" 3.5c, third grade 2c, by principal marketers. Discounts are off s.s. below 75,000 gals., and off t.w. above 75,000 gals.

Consumer discounts, off t.w., outside Chicago: 500 to 75,000 gals., Ethyl 3c, Red Crown 2.5c, Blue 1.5c. Over 75,000 gals., Ethyl 4c, Red Crown 3.5c, Blue 2c.

Chicago consumer discounts, off t.w.: over 500 gals., Ethyl 4c, regular 3.5c, third grade 2c.

Effective Nov. 4, 1931, t.w. buyers who formerly failed to buy enough to get discount, now get 1c off t.w. No change in total discount to contract customers.

S. O. NEBRASKA

Red Crown Gasoline

Omaha, Neb.	11.9	4	15.9	16.9	10.25
McCook, Neb.	14	4	18	18	11.75
Norfolk, Neb.	13.75	4	17.75	18.75	10.75
North Platte, Neb.	14	4	18	18	11.5
Scottsbluff, Neb.	14	4	18	18	11.25

Dealer discount: on gasoline off normal s.s. prices: Ethyl 3c; Red Crown 2.5c.

S. O. LOUISIANA

Standard Gasoline

	Posted Retail T.W.	Tax	Total Posted Retail T.W.	Posted Retail S.S.	Kerosine T.W.
Little Rock, Ark.	13	6	19	19	11
Alexandria, La.	13	6	19	19	†10
Baton Rouge, La.	13	5	18	18	†12
New Orleans, La.	13	*6	19	19	*12
Lake Charles, La.	13	*6	19	19	†12
Shreveport, La.	13	5	18	18	†12
Lafayette, La.	13	6	19	19	†10
Bristol, Tenn.	13.5	7	20.5	20.5	14
Chattanooga, Tenn.	15	7	22	22	13.5
Knoxville, Tenn.	15	7	22	22	13.5
Memphis, Tenn.	13.5	7	20.5	20.5	11
Nashville, Tenn.	14.5	7	21.5	21.5	13

Blue-Gas (Third Grade)

	Tax	Total Posted Retail S.S.	Kerosine T.W.
Little Rock, Ark.	6	15	11
Alexandria, La.	*6	13	†10
Baton Rouge, La.	5	15	†12
New Orleans, La.	*6	16	*12
Lafayette, La.	*6	17	†10
Lake Charles, La.	*6	16	†12
Shreveport, La.	5	14	†12
Chattanooga, Tenn.	7	19.5	13.5
Knoxville, Tenn.	7	19	13.5
Memphis, Tenn.	7	16	11
Nashville, Tenn.	7	17	13

Open dealer and tankwagon commercial consumer discounts: on Standard gasoline, 2.5c (beginning Feb. 23, 1932) per gal. off posted retail tank wagon price; 2c on kerosine; no discount on Blue-Gas.

Lease and agency discounts: Esso gasoline, 2.5c; Standard gasoline, 2c; Blue-Gas, 1c, off s.s. price, plus 1c per gal. rental.

*Lake Charles, Alexandria, New Orleans and Lafayette gasoline tax includes 5c state tax and 1c parish tax. New Orleans kerosine price includes 1c parish tax in addition to 1c state tax.

†Kerosine prices in Louisiana include 1c state tax.

MAGNOLIA PETROLEUM

Maximum Mileage Gasoline

	T.W.	Tax	Total T.W.	S.S.	Kerosine T.W.
Muskogee, Okla.	11	4	15	17	9
Oklahoma City	11	4	15	17	9
Tulsa, Okla.	11	4	15	17	9
Fort Smith, Ark.	14.5	†4	18.5	18.5	11
Little Rock, Ark.	13.5	6	19.5	19.5	11
Texarkana, Ark.	14.5	4	18.5	18.5	11
Dallas, Tex.	13	4	17	18	10
El Paso, Tex.	12	4	16	18	12
Fort Worth, Tex.	13	4	17	18	9
Houston, Tex.	12	4	16	19	10
San Antonio, Tex.	12	4	16	18	9

Blue Gasoline

Muskogee, Okla.	11	4	15	15	9
Oklahoma City	9	4	13	13	9
Tulsa, Okla.	10	4	14	14	9
Fort Smith, Ark.	11	4	15	15	11
Little Rock Ark.	9	6	15	15	11
Texarkana, Ark.	9	4	13	13	11
Dallas, Tex.	9	4	13	13	10
El Paso, Tex.	10	4	14	14	12
Fort Worth, Tex.	10	4	14	14	9
Houston, Tex.	9	4	13	13	10
San Antonio, Tex.	9	4	13	13	9

Dealer discounts: on Maximum Mileage gasoline, 2.5c off t.w. price to dealers, thru Arkansas. On Blue gasoline, 1c per gal. off t.w. price to dealers thru territory. Fort Smith and Little Rock kerosine prices are subject to 2c discount off t.w. price.

*In Texarkana, 4c Texas tax applies; out side Texarkana, 6c Arkansas tax applies.

†In Fort Smith, 4c Oklahoma tax applies; outside Fort Smith, 6c Arkansas tax applies.

CONTINENTAL OIL

Conoco Gasoline

Denver, Colo.	13	4	17	20	13.5
Pueblo, Colo.	13	4	17	20	13
Grand Junc., Colo.	15	4	19	22	15.5
Casper, Wyo.	12	4	16	19	11
Cheyenne, Wyo.	11	4	15	18	12.5
Butte, Mont.	17	5	22	25	17
Helena, Mont.	16	5	21	24	17
Salt Lake City, Utah	14.5	4	18.5	21.5	16
Boise, Ida.	13	5	*18	20	18
Twin Falls, Ida.	14	5	19	22	18
Albuquerque, N. M.	12	5	17	20	14

*Dealer discount: 1c off t.w.

S. O. CALIFORNIA

Standard Gasoline

San Francisco, Cal.	9.5	3	12.5	14.5	12.5
Los Angeles, Cal.	9	3	12	14	12.5
Fresno, Cal.	9.5	3	12.5	14.5	14
Phoenix, Ariz.	9.5	5	14.5	17	†20.5
Reno, Nev.	12	4	16	20	15.5
Portland, Ore.	10	4	14	15	13.5
Seattle, Wash.	10	5	15	16	13.5
Spokane, Wash.	13.5	5	18.5	20	18
Tacoma, Wash.	10	5	15	16	13.5

†Includes 5c state tax.

CANADA

Prices of Imperial Oil Ltd.

(Per Imperial Gallon, which is 1.2 U. S. Gallons)

Imperial Three Star Gasoline	T.W.	Tax	Total T.W.	S.S.	Kerosine T.W.
Hamilton, Ont.	18.5	6	24.5	28	16.5
Toronto, Ont.	18.5	6	24.5	28	17.5
Brandon, Man.	23.5	7	30.5	34	20.5
Winnipeg, Man.	20.5	7	27.5	31	17.5
Regina, Sask.	24.5	6	30.5	34.5	21.5
Saskatoon, Sask.	26.5	6	32.5	36.5	23.5
Edmonton, Alta.	25.5	5	30.5	34	22.5
Calgary, Alta.	22	5	27	30.5	19
Vancouver, B. C.	19	7	26	30	22
Montreal, Que.	18.5	6	24.5	28	17.5
St. John, N. B.	20	7	27	31	22
Halifax, N. S.	20	6	26	30	22

Aviation Gasoline Prices

Following are tank wagon prices of aviation gasoline in principal marketing territories showing state and municipal taxes:

S. O. NEW JERSEY

Prices in Effect May 23, 1932

Stanavo Aviation Gasoline	T.W.	Tax	Total T.W
Newark, N. J.	16	..	16
Baltimore, Md.	16	4	20
Washington, D. C.	16.3	2	18.3

COLONIAL BEACON OIL CO.

Stanavo Aviation Gasoline			
New York City	16	2	18
Boston, Mass.	18	3	21

S. O. PENNSYLVANIA

Stanavo Aviation Gasoline			
Philadelphia, Pa.	15	3	18
Pittsburgh, Pa.	16	3	19
Altoona, Pa.	16	3	19
Harrisburg, Pa.	15	3	18

S. O. OHIO

Sohio Aviation Gasoline			
Thru Ohio	15	4	19

Discounts: to airports, 1 to 4c, based on quantity.

S. O. INDIANA

Stanavo Aviation Gasoline			
Chicago	16	3	19
Indianapolis, Ind.	16.3	4	20.3
Detroit, Mich.	16.9	3	19.9
Milwaukee, Wisc.	16.2	4	20.2
Minneapolis, Minn.	17.3	3	20.3
St. Louis, Mo.	15.4	2	17.4
Kansas City, Mo.	16	*3	19
Fargo, N. D.	19	3	22
Huron, S. D.	17.4	4	21.4
Wichita, Kan.	14.9	3	17.9

*Includes 1c city tax.

S. O. LOUISIANA

Stanavo Aviation Gasoline			
Little Rock, Ark.	19	6	25
New Orleans, La.	18	6	24
Shreveport, La.	18	5	23
Chattanooga, Tenn.	21	7	28
Memphis, Tenn.	19	7	26

Dealer and commercial consumer discount: 2.5c off posted retail t.w.

CONTINENTAL OIL CO.

Denver, Colo.	16	4	20
Cheyenne, Wyo.	16	4	20
Helena, Mont.	19	5	24
Salt Lake City, Utah	17.5	4	21.5
Albuquerque, N. M.	16	5	21
Boise, Ida.	16	5	21

S. O. CALIFORNIA

Stanavo Aviation Gasoline			
Phoenix, Ariz.	12.5	5	17.5
Los Angeles, Cal.	12	3	15
San Francisco, Cal.	12.5	3	15.5
Reno, Nev.	15	4	19
Portland, Ore.	13	4	17
Seattle, Wash.	13	5	18
Spokane, Wash.	16.5	5	21.5

Note: 4c added to customers taking delivery direct into planes.

(Continued on page 68)

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Crude Oil Prices (in Effect May 23, 1932)

Crude prices for the whole year in OIL PRICE HANDBOOK published annually
(Prices are per barrel at the well; A.P.I. gravity).

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in Southwest Penna. Pipe Lines.....$1.75
(Effective April 25, 1932)
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)..... 1.70
(Effective April 25, 1932)
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.).....†1.55
(Effective April 25, 1932)
Corning Oil in Buckeye Pipe Lines (Ohio).... 1.05
(Effective April 26, 1932)

†For Macksburg oil run previous to March 1, 1932, $1.45.

Posted by Other Companies

Tide Water Pipe Co., Ltd.:
Bradford-Alleghany district (Penna. and N. Y.).....$2.02
(Effective April 25, 1932)

*The Pennzoil Co.:
Penna. Grade Oil in National Transit Lines*$1.97
(Effective April 25, 1932)

Ashland Refining Co.:
Somerset Oil in Ashland Lines (Kentucky)..$0.85
(Effective April 26, 1932)

Stoll Oil Refining Co.:
Stoll Pipe Line Oil (Kentucky).....$0.85
(Effective April 16, 1932)

*The Pennzoil Co. posts $1.97 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields; prices in other districts range down to $1.92 per bbl. at wells.

MICHIGAN

(Posted by Pure Oil Co.)

Midland, Midland County (May 17, 1932)....$0.65

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.
Effective April 11, 1932

Wooster	$1.25	Princeton	$1.10
Lima	1.15	Illinois	1.10
Indiana	0.75	West Kentucky	1.05

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.
Effective Nov. 3, 1931

Petrolia, Ont.....$1.90
Oil Springs, Ont.....$1.97

Turner Valley, Alta.:
(Effective April 21, 1932)

40-44.9	$1.56	Naphtha:	
45-49.9	2.18	†Clear	$3.32
50 and above	2.80	†Discolored	3.08

†Clear naphtha: 22 color, 10 lbs. vapor pressure, 90% recovery, end point, 410° A.P.I. Discolored naphtha: 90% recovery and 10 lbs. vapor pressure.

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Stanolind Crude Oil Purchasing Co.
(In Oklahoma, Kansas, North and North Central Texas)

(Effective April 11, 1932)

Below 29	$0.76	35-35.9	$0.90
29-29.9	0.78	36-36.9	0.92
30-30.9	0.80	37-37.9	0.94
31-31.9	0.82	38-38.9	0.96
32-32.9	0.84	39-39.9	0.98
33-33.9	0.86	40 and above	1.00
34-34.9	0.88		

On April 1, 1932, above prices were first posted by Continental Oil Co., followed the same day by Barnsdall, Bartex Pipe Line Co. (Phillips Pet.), Magnolia, Sinclair, Sun Oil, and The Texas Co. April 11, Humble Oil & Refining Co., Gulf Refining Co. and Carter Oil Co. met Carter's schedule having these five lower grades: below 25, $0.68; 25-25.9, $0.70; 26-26.9, $0.72; 27-27.9, $0.74; 28-28.9, $0.76.

Humble's prices are in Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Currie and Moran, Tex.

East Texas

Magnolia, Sinclair and Texas Co. post $0.98 effective April 1, 1932.

Magnolia Petroleum Co.

(In Oklahoma, North, North Central and Central Texas)

(Including in North and North Central Texas: Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden; in Central Texas: Mexia, Wortham, Corsicana Light and Panola county).

Effective April 1, 1932

Below 28	$0.67	28-28.9	$0.76

Rest of schedule same as Stanolind, which see above.

Lytton Springs, Tex.....$0.94
Corsicana heavy..... 0.64

PANHANDLE TEXAS

Humble Oil & Refining Co.
Effective April 11, 1932

Hutchinson-Carson Counties		Gray County	
Below 35	$ .66		$0.76
35-35.9	.68		.78
36-36.9	.70		.80
37-37.9	.72		.82
38-38.9	.74		.84
39-39.9	.76		.86
40 and above	.78		.88

April 1, 1932 Magnolia and The Texas Co. first posted above prices.

WEST TEXAS and NEW MEXICO

Humble Oil & Refining Co
Effective April 11, 1932

Pecos, Winkler, Crane, Upton, Crockett, Ector, Howard and Glasscock Counties, Tex., and Lea county, N. Mex.....$0.65

April 1, 1932 Magnolia and The Texas Co. first posted above prices; Magnolia's prices applying in Winkler, Crane, Upton, Howard, Glasscock and Mitchell; Texas Co. posts in Crane, Upton, Winkler and Lea.

SOUTH and SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)
Effective April 11, 1932

Mirando	$0.80	Salt Flat	$0.75
Darst Creek	0.75	Pettus, Bee Cty.	1.00

(Posted by Magnolia Petroleum Co.)
Effective April 1, 1932

Mirando	$0.90	Darst Creek	$0.75
Luling	0.64		

NORTH LOUISIANA—ARKANSAS FIELDS

‡Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto, Sabine, Sarepta and Carterville

Effective April 11, 1932

Below 25	$0.68	33-33.9	$0.86
25-25.9	.70	34-34.9	.88
26-26.9	.72	35-35.9	.90
27-27.9	.74	36-36.9	.92
28-28.9	.76	37-37.9	.94
29-29.9	.78	38-38.9	.96
30-30.9	.80	39-39.9	.98
31-31.9	.82	40 and above	1.00
32-32.9	.84		

Smackover.....$0.65
*Urania, La..... 0.60
†Stephens, Ark.:
Below 29.....$0.61
29 and above..... 0.64

*Urania posted by Louisiana Oil Refining Corp.
†Stephens posted by Atlantic Oil Producing Co. and Louisiana Oil Refg. Corp.

‡April 1, 1932, The Texas Co. first advanced North Louisiana crude prices shown above.

April 6, Magnolia advanced Pine Island, Haynesville, Bull Bayou, Cotton Valley, La., El Dorado light, and Rainbow, Ark. to above prices.

*GULF COASTAL

Posted by Humble Oil & Refining Co.
Effective April 11, 1932

Below 25	$0.80	33-33.9	$0.89
25-25.9	.81	34-34.9	.90
26-26.9	.82	35-35.9	.91
27-27.9	.83	36-36.9	.92
28-28.9	.84	37-37.9	.94
29-29.9	.85	38-38.9	.96
30-30.9	.86	39-39.9	.98
31-31.9	.87	40 and above	1.00
32-32.9	.88		

Refugio heavy.....$0.80

*Includes these fields: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junction, Rabbs Ridge, Raccoon Bend, Refugio light, Sour Lake, Spindletop, Sugarland and West Columbia.

April 1, 1932 The Texas Co. first posted above prices.

Pennzoil Reorganizes Two Departments

OIL CITY, Pa., May 20.—The sales and executive personnel of The Pennzoil Co., Oil City, producer, refiner and marketer of Pennzoil motor oils and lubricants, has been reorganized as of May 1.

Jay F. Vandeventer, executive vice-president, now heads the lubricating sales, with W. S. Zehrung as sales manager, B. S. Phillips and H. M. Jones as assistant sales managers, John L. King as sales engineer and E. F. Johnson as advertising manager.

All have been promoted to their new positions after serving in other capacities. Mr. Vandeventer is well known in the oil industry, and will continue to devote part of his time to the financial end of the business.

Mr. Zehrung was formerly chief chemist, assistant refinery superintendent and head of the sales engineering department.

Mr. Phillips was formerly advertising manager; Mr. Jones, assistant to the vice-president in charge of sales and Mr. Johnson was formerly assistant advertising manager.

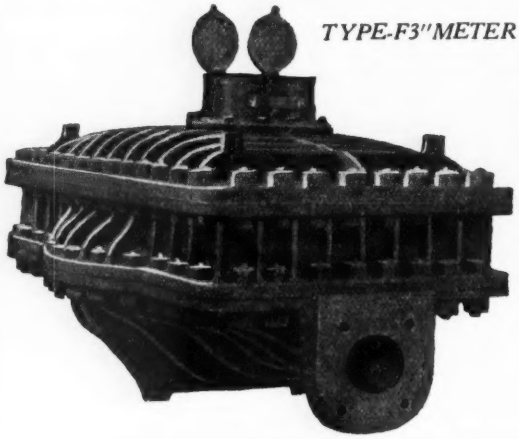
CHICAGO, May 19.—M. W. Prellberg, formerly with the Falley Petroleum Co., has become associated with the Refiners Petroleum Co. of this city.

Motor-State Gets Allison, Breckenridge

JACKSON, Mich.—Two veteran grease men, A. Roy Allison and William Breckenridge, will begin calling on the jobbing trade for the Motor-State Oil & Grease Co. here.

Since the addition of these men to its force, the company plans to extend its operations considerably, according to a member of the company. W. E. Callahan is president.

CHICAGO, May 19.—Roger Q. Howard, for the past three years in charge of the tank car marketing department of the Lynch-Clarisey Co., is now in the tank car sales department of the Jas. Berry's Sons Co., Chicago.



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Type and Size	Capacity Gals. per Minute	Working Pressures
C – 1" Bronze	3 – 25	45 – 60
D – 1½" Bronze (Light Case)	12 – 50	25 – 30
D – 1½" Bronze (Heavy Case)	12 – 50	50 – 70
DS – 1½" Bronze (For Truck)	12 – 80	50 – 70
ET – 2" Bronze (For Truck)	20 – 120	12 – 15
E – 2" Cast Iron	20 – 160	55 – 75
F – 3" Cast Iron	50 – 350	150

*Note the wide range of flow.

Literature mailed on request

GRANBERG METER CORPORATION
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New Patents

Prepared by R. E. Burnham, patent and trade-mark attorney, 1343 H Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 20c each. State number of patent and name of inventor when ordering.

April 12, 1932

REFINING

Process for treating hydrocarbon oils—Cary R. Wagner, Chicago, Ill., assignor to Pure Oil Co., same place. Filed June 11, 1928. No. 1,853,753.

Method of treating cracked hydrocarbon vapors—Cornelius B. Watson, Chicago, Ill., assignor to Pure Oil Co., same place. Filed July 1, 1929. No. 1,853,755.

Refining of petroleum oils—Jacque C. Morrell, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed Dec. 9, 1925. No. 1,853,920.

Refining of gasoline-like products of hydrocarbon-oil conversion—Jacque C. Morrell, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed Dec. 9, 1925. No. 1,853,921.

Process of producing lower-boiling-point hydrocarbons—Carbon P. Dubbs, Wilmette, Ill., assignor to Universal Oil Products Co., Chicago, Ill. Filed June 15, 1920. No. 1,853,965.

Refining hydrocarbons—Thomas T. Gray, Elizabeth, N. J., assignor to Gray Processes Corp., Newark, N. J. Filed Aug. 9, 1926. No. 1,853,972.

Process and apparatus for rectifying vapors—Philip Subkow, Los Angeles, Calif., assignor to Union Oil Co., same place. Filed Sept. 6, 1927. No. 1,854,002.

Process for converting petroleum oil—Jean D. Seguy, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed Mar. 16, 1923. No. 1,854,073.

Crude-oil-distilling apparatus—John J. Walter, Glendale, Calif. Filed Apr. 5, 1929. No. 1,854,086.

Process for cracking petroleum hydrocarbons—Aubrey D. David, Chicago, Ill., assignor to Universal Oil Products Co., same place. Filed Feb. 12, 1923. No. 1,854,115.

Production of hydrocarbons of low-boiling point—Ernst Galle, Ludwigshafen-on-the-Rhine, and Gerhardt Hofmann and Hermann Zorn, Mannheim, Germany, assignors to I. G. Farbenindustrie. Filed Sept. 3, 1927. No. 1,854,146.

PRODUCTION

Pumping-jack—Bert G. Goble, Tulsa, Okla. Filed Nov. 8, 1926. No. 1,853,046.

Double casing-perforator—Daniel L. Shull, Bakersfield, Calif., assignor to Shull Perforating Co. Filed Feb. 23, 1928. No. 1,853,239.

Gas-lift pump—Ford W. Harris, Los Angeles, Calif. Filed June 27, 1928. No. 1,853,269.

Sucker-rod joint—Monroe W. Carroll, Beaumont, Tex. Filed Feb. 28, 1928. No. 1,853,299.

Apparatus for automatic well drilling — Harry Hayes, Alhambra, Calif. Filed Mar. 4, 1931. No. 1,853,351.

Device for controlling the flow of wells—John H. Tucker, Houston, Tex., assignor to Gulf Production Co., same place. Filed Apr. 25, 1930. No. 1,853,474.

Formation testing—James C. Fortune, New York, N. Y. Filed May 28, 1928. No. 1,853,557.

Method and apparatus for scavenging core-drills—John M. Schmissrauter, San Pedro, and James E. Harris, Lomita, Calif. Filed Mar. 17, 1930. No. 1,853,581.

Crude Oil Prices (in Effect May 23, 1932)

(Prices are per barrel at the well; A.P.I. Gravity)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

ROCKY MOUNTAIN FIELDS
(Posted by Midwest Refining Co.)

Effective April 11, 1932

Salt Creek, Wyo.:

Below 29°	$0.76	32-32.9	$0.84
29-29.9	0.78	33-33.9	0.86
30-30.9	0.80	34-34.9	0.88
31-31.9	0.82	35-35.9	0.90
36-36.9	$0.92	39-39.9	$0.98
37-37.9	0.94	40 and above	1.00
38-38.9	0.96		

Salt Creek prices met by The Texas Co. April 11.

Effective April 11, 1932

Cat Creek, Mont.	$1.20
Hogback, N. Mex.	0.80
Hobbs, N. Mex.	0.65

(Posted by Ohio Oil Co.)

Effective April 11, 1932

Elk Basin, Wyo.	$1.20
Grass Creek Light	1.20
Big Muddy	0.98
Lance Creek	1.15
Rock Creek	1.00
Sunburst, Mont.	1.05

CALIFORNIA CRUDE

††Standard Oil Co. of California
Effective June 19, 1931

Posted by Union Oil Co. of California June 20, 1931

Gravity	Signal Hill •Seal Beach •Alamitos Heights	Huntington Beach	Inglewood	Playa del Roy	Olinda-Brea Canon	Elwood Terrace	Torrance	Richfield	†Whittier †La Habra Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Elk Hills Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge	Athens Rosecrans Dominguez	Santa Paula	Orcutt	‡Ventura Avenue
14-19.9	$0.65	$0.65	$0.65	$0.65	$0.65	—	$0.65	$0.65	$0.65	$0.65	—	$0.55	$0.55	$0.55	$0.55	$0.55	—	$0.65	$0.55	—
20-20.9	.65	.65	.66	.65	.66	—	.65	.65	.65	—	—	.55	.55	.55	.55	—	—	.65	.56	—
21-21.9	.65	.65	.68	.66	.67	—	.65	.66	.65	.65	—	—	.55	.57	.55	.55	—	.65	.57	—
22-22.9	.65	.66	.70	.67	.68	—	.66	.68	.65	.65	—	—	.56	.59	.55	.55	—	.65	.59	.58
23-23.9	.67	.68	.72	.68	.70	—	.67	.70	.65	.66	—	—	.58	.60	.55	.55	—	.65	.61	.60
24-24.9	.69	.70	.74	.69	.72	—	.68	.72	.65	.67	$0.65	—	.61	.62	.55	.55	$0.69	.66	.63	.62
25-25.9	.71	.72	.76	.70	.74	Prob. Ship	.70	.74	.65	.69	.65	—	.64	.64	.57	.55	.71	.68	.65	.64
26-26.9	.73	.74	—	—	.76	—	—	—	—	.71	.65	—	.66	.66	—	—	.73	.70	.67	.66
27-27.9	.75	.76	—	—	.78	—	—	—	—	.73	.68	—	.68	.67	—	—	.75	.72	—	.68
28-28.9	.77	—	—	Subject to field gathering charge of 5c per barrel.	.80	—	—	—	—	.75	.71	—	.71	.69	—	—	.77	.74	—	.70
29-29.9	.79	—	—		—	—	—	—	—	.77	.73	—	.74	.71	—	—	.79	.76	—	.72
30-30.9	.81	—	—		—	—	—	—	—	.79	.75	—	.76	.72	—	—	.81	.78	—	.74
31-31.9	—	—	—		—	—	—	—	—	—	.78	—	—	—	—	—	.83	—	—	—
32-32.9	—	—	—		—	—	—	—	—	—	.80	—	—	—	—	—	.85	—	—	—
33-33.9	—	—	—		—	$0.79	—	—	—	—	.83	—	—	—	—	—	.87	—	—	—
34-34.9	—	—	—		—	.81	—	—	—	—	.86	—	—	—	—	—	.89	—	—	—
35-35.9	—	—	—		—	.84	—	—	—	—	.87	—	—	—	—	—	—	—	—	—
36-36.9	—	—	—		—	.87	—	—	—	—	—	—	—	—	—	—	—	—	—	—

•Seal Beach and Alamitos Heights prices end with $0.75 for crude 27 and above.

†Whittier and La Habra crude ends with 22-22.9 gravity.

††Postings on Kettleman Hills, Ventura Avenue, Athens-Rosecrans and Dominguez discontinued by Standard. Kettleman Hills, 30 and above, posted at 66 cents by Associated Oil Co. and General Petroleum Co., June 19, 1931.

‡Posted by Associated Oil Co., June 20, 1931.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	May 23	May 16
Soda Ash Light 58% bags, cwt.	$1.15-1.38	$1.15-1.38
Silicate of Soda 60 deg. drums, cwt.	$1.75-1.90	$1.75-1.90
Silicate of Soda 40 deg. tank cars, cwt.	$0.70	$0.70
Silicate of Soda 40 deg. drums, cwt.	$1.00	$1.00
Sal Soda wks.	$0.90-1.20	$0.90-1.20
Caustic Soda 76% solid, cwt.	$2.50	$2.50
Sulfuric Acid 60 deg. tank cars, f. o. b. shipping point per ton	$11.00-12.50	$11.00-12.50
Sulfur, flowers of, cwt.	$3.10-4.05	$3.10-4.05
Liquid Chlorine, tank cars, whs., lb.	1.75	1.75

Compounder's Supplies

Vegetable Oils		
Linseed carloads, spot, lb.	6.60	6.60
Tanks, spot	6.00	6.00
Soya Bean, Tank, coast, lb.	5.00-5.50	5.00-5.50
Oleic Acid		
Distilled, tanks, lb.	5.75	5.75
Distilled, bbls., lb.	7.125-7.375	7.125-7.375
Saponified, tanks, lb.	6.00	6.00
Saponified, bbls., lb.	6.75-7.00	6.75-7.00
Lard Oils		
Prime Winter Strained, lb.	8.75	9.75
Extra Winter Strained, lb.	6.25	7.00
Extra, lb.	6.25	6.75
Extra No. 1, lb.	5.75	6.25
No. 1, lb.	5.50	6.00
No. 2, lb.	5.25	5.75
Tallow oil, lb.	7.00	7.00
Neatsfood Oil		
Pure, bbls., lb.	7.75	8.75
Extra, bbls., lb.	6.00	6.50
No. 1, bbls., lb.	5.75	6.25
Cold Pressed, lb.	12.75	13.25
Fish Oils		
Menhaden Oil		
Light Pressed, gal.	30–31	30 31
Light Pressed, tank cars, N. Y., gal.	25–26	25-26
Yellow bleached, gal.	28–29	28–29
Whale, extra winter bleached, gal.	58–60	58–60
Naval Stores		
Steam distilled turpentine, N. Y., gal.	47	47
Steam, distilled turpentine, Savannah, gal.	41	41
Gum turpentine, N. Y., gal.	50	50
Gum turpentine, f.o.b. cars Savannah, gal.	44	44
Wood Rosin, N. Y., bbl.	$4.78	$4.78
Wood Rosin F, Savn'h., bbl.	$4.58	$4.58
Gum Rosin B, N. Y., bbl.	$3.25	$3.25
Gum Rosin B, f. o. b. cars Savannah, bbl.	$2.60	$2.60
Rosin oil, pure, gal.	47–49	47–49
Rosin, oil, compounded, gal.	41–43	41–43
Pine Tar		
Kiln burnt,	$10.00-11.00	$10.00-11.00
Retort, bbl.	$11.00-12.00	$11.00-12.00
Alcohol		
Denatured Formula 5, in tanks, per gal.	31.4	31.4

Book Value of New Jersey Standard Stock is $48.99 per Share

NEW YORK, May 21

STANDARD OIL CO. (N. J.) and affiliated companies had net profit of $8,704,758.04 in 1931. This sum was 33.8 cents a share on the parent company's 25,735,468 shares of $25 par stock outstanding at the end of the year; 0.7 per cent on the net assets.

The present statement of the company cannot be compared with those of previous years, W. G. Teagle, president, pointed out, because in the current report are consolidated the accounts of all subsidiaries and subsidiaries of subsidiaries that in previous years were carried as investments.

Including the insurance reserves in surplus the New Jersey stock had a book value of $48.99 a share at the end of 1931. This amount is approximately double the present stock market price of the stock.

Gross production of subsidiary companies was 100,148,063 barrels: 50,126,748 barrels in the United States and 50,021,315 abroad. Domestic production was 1,769,305 barrels less than in 1930; foreign production 600,622 barrels less. Its domestic production was less in all fields except Texas. Abroad, production was less than in 1930 in Colombia and Peru, more in the Argentine, Dutch East Indies and Roumania.

It completed 773 wells last year; 137 less than in 1930. Production at home and abroad last year was 47 per cent natural flow; 8 per cent by gas and air lift; 45 per cent through the pump.

Subsidiaries reduced crude oil stocks from 55,581,526 to 40,422,350 barrels last year, about 27 per cent. Purchase of large quantities of crude continued. Value of oils in storage shrank $24,421,834.03.

Domestic output of natural gasoline was 2,488,000 barrels, decrease of 24 per cent from 1930 output, compared with 20 per cent decrease in entire industry. Foreign output was increased 62,000 barrels to 1,686,000 barrels. Entire output was 15 per cent less than in 1930.

Pipelines moved 113,310,000 barrels of crude; 6,381,000 barrels less than in 1931. This volume was exclusive of 21,903,000 barrels moved through the Ajax pipeline.

Humble laid 292 miles of gathering lines in East Texas and increased trunk line capacity to ship 150,000 barrels daily out of that field; 90,000 barrels may go to Baton Rouge through Standard system from Shreveport. Remainder goes to Baytown through Humble lines.

Oklahoma pipeline was changed so crude can be moved east through Ajax line from Texas, Louisiana and Arkansas.

Domestic refineries ran 336,148 barrels of crude daily; decrease of 8 per cent from 1930 runs. Decrease was due in part to increased yield of more valuable products from the crude. Modernized equipment increased manhour output. Motor oils are being produced by hydrogenation.

Foreign refineries in Canada, Cuba, Trinidad, Venezuela, Colombia, Peru, Argentina, Norway, Poland, Italy, Roumania, England and Dutch East Indies ran 132,522 barrels of crude daily; 131,378 in 1930.

New Jersey company has joined with Gulf Refining Co. and Atlantic Refining Co. in building 16,000-barrel plant at Port Jerome, near Havre, France, because France is smiling on home products.

(*Continued on Page* 69)

Consolidated 1931 Income Account, Standard Oil Co. (N. J.) and Affiliates

Gross operating income	$1,084,926,344.59
Costs operating and general expenses	928,414,731.51
Taxes, exclusive of gasoline	24,902,704.15
Net operating income	$131,608,908.93
Other income	32,615,457.38
Total income	$164,224,366.31
Interest and discounts	9,360,545.42
Depreciation, depletion, amortization and retirements	109,823,975.58
Inventory loss on crude and products	24,421,834.03
Minority interests' share in profits	11,913,253.24
Net profit of corporation	$8,704,758.94

Consolidated Balance Sheet of Standard Oil Co. (N. J.) and Affiliates

Dec. 31, 1931

Assets

Cash	$ 73,196,485.80
Marketable securities at cost or 6.54% above market value, includes own stock and subs. securities	206,604,533.86
Acceptances, notes receivable, net	9,382,377.35
Accounts receivable, net	151,537,760.61
Oil, all but Humble, at lower of cost or market	143,860,245.10
Oil, Humble, cost, 10.77% above mkt.	26,497,102.79
Other merchandise	9,924,784.32
Materials and supplies	50,151,331.81
Total current assets	$ 671,154,621.64
Permanent investments	99,620,203.74
Sinking and special funds	1,335,217.98
Fixed assets, net*	1,087,059,884.68
Patents, copyrights, franchises, goodwill	42,851,030.44
Prepaid and deferred charges	16,989,409.22
Total assets	$1,919,010,367.70

*Reserves are: Depreciation $733,394,187.63; depletion $47,355,403.55; amortization $17,939,086.03.

Liabilities

Acceptances, notes payable	$ 5,404,703.56
Accounts payable	66,261,734.20
Income tax reserve	4,064,154.70
Other accrued liabilities	10,185,666.43
Total current liabilities	$ 85,916,258.89
S.O.N.J. 5% debentures, due 1946	120,000,000.00
Humble 5½% debentures, due 1932	22,761,000.00
Humble 5% debentures, due 1937	20,183,000.00
Interstate Nat. Gas Co. bonds	6,388,000.00
Agwi Petroleum Co. debenture stock	1,017,750.00
Beacon Oil debentures, due 1936	2,148,500.00
Victory Service Station bonds	71,116.97
Colonial Filling Station bonds	720,000.00
Real estate purchase obligations	152,650.00
Total funded debt	$ 173,442,016.97
Annuity, insurance, miscel, reserves	91,152,803.11
Capital, surplus minority interests	327,353,304.22
Capital stock, 25,735,468 shares	643,386,700.00
Capital surplus	76,723,405.46
Appropriated surplus	29,014,890.30
Unappropriated surplus	486,754,866.58
Total surplus	$ 592,493,162.34
Total liabilities	$1,919,010,367.70

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WAX—PETROLEUM COKE
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Gulf Refining Company

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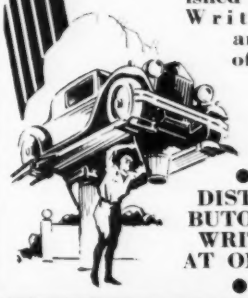

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PRIMROSE PETROLEUM CO., INC.

(Incorporated under the Laws of the State of Texas, 1916)

DALLAS, TEXAS

Transactions in Oil Shares on New York Stock Exchange

1931 High	1931 Low	1932 High	1932 Low	Listed Shares	Par Value	Company	Div. Rate Period	Last Div. Paid	Transactions Week Ended May 21 Sales Shares	High	Low	Last	Week's Change
23	11¼	16¼	12	922,075	N.P.	Amerada Corp.	50cQ	Apr. 30, 32	2,700	*16¼	15⅛	15½	— ½
12⅜	1¼	4	¼	209,180	N.P.	American Republics Corp.	....	....	....	....	....	....	....
31	8¾	10⅞	6¾	2,240,000	$25	Associated Oil Co.	25c	Apr. 15, 32	10	8	8	8	+ 1
23⅝	8⅝	12⅞	8⅝	2,696,652	25	Atlantic Refining Co.	25cQ	Mar. 15, 32	9,200	11⅞	10½	11⅜	+ ⅞
14½	4	5⅞	4	2,257,740	5	Barnsdall Corp.	....	May 11, 31	8,000	4¼	4	4⅛	0
25	8	....	....	2,060,966	25	California Petroleum Corp.	....	Jan. 1, 29	....	....	....	....	....
10½	7½	10½	9	1,444,970	N.P.	Colonial Beacon Oil Co.	....	....	200	10⅜	10	10⅜	+ ⅜
15⅞	4⅛	7⅛	4⅛	14,218,835	N.P.	Consolidated Oil Corp.	....	....	39,000	5⅝	4½	5	+ ⅜
103	64	96	79	141,294	$100	do pfd.	$2	Feb. 15, 32	700	83	79	83	+ 3
12	5	7	4⅝	4,722,301	N.P.	Continental Oil Co.	....	....	17,400	5⅜	4⅞	5⅛	+ ¼
47	9⅝	15½	7¼	413,333	N.P.	General Asphalt Co.	25cQ	Mar. 15, 32	2,600	9	†7¼	8½	+ 1
68½	15¼	24⅜	9¾	96,116	$100	Houston Oil Co.	....	....	4,400	12¾	10	12¼	+ 2
14⅛	3	5⅛	2⅛	677,019	25	do new	....	....	2,700	2¾	2¼	2½	— ⅛
4⅝	1⅛	1⅝	1	556,546	10	Indian Refining Co.	....	Dec. 15, 20	500	1¼	1⅛	1⅛	0
4½	1	1⅝	¾	1,309,036	N.P.	Louisiana Oil Ref'g. Corp.	....	....	....	....	....	....	....
55	20	18	12	40,000	$100	do pfd.	$1.62½Q	Feb. 15, 32	....	....	....	....	....
3¾	½	1	⅜	330,000	N.P.	Maracaibo Oil Exploration Co.	....	....	200	¾	†⅜	¾	+ ⅛
171	50⅛	60	50	459,428	$100	Mexican Petroleum Co.	....	Apr. 20, 31	....	....	....	....	....
100	100	105	100	120,000	100	do pfd.	$2Q	Apr. 20, 32	....	....	....	....	....
16¾	5	6½	4	1,857,912	N.P.	Mid-Continent Petroleum Corp.	....	Feb. 16, 31	7,800	5¼	4½	5	+ ⅛
19½	5⅛	8½	5	6,548,052	N.P.	Ohio Oil Co.	....	Mar. 14, 31	25,300	*8½	7¼	7¾	+ ⅝
35⅛	20	28	17⅛	1,000,000	$50	Pan American Pet. & Transp. Co.	40cQ	Apr. 20, 32	....	....	....	....	....
36½	18	33⅛	16	2,474,131	50	do B non-voting	40cQ	Apr. 20, 32	400	*33⅛	30⅛	33⅛	+ 2½
4¼	⅝	1¾	½	199,370	N.P.	Panhandle Prod. & Ref'g. Co.	....	....	120	4	3½	3½	— ½
20	5	8	3½	25,666	$100	do pfd.	....	July 2, 23	....	....	....	....	....
10⅞	2⅛	4⅛	3	2,396,084	N.P.	Petroleum Corp. of America	....	June 1, 31	3,100	3⅜	3⅛	3⅜	+ ⅛
16⅝	4	6½	3½	4,421,910	N.P.	Phillips Petroleum Co.	....	Jan. 2, 31	9,800	4¼	3⅝	4⅛	+ ⅛
1½	⅛	½	¼	1,184,917	$25	Pierce Oil Corp.	....	....	....	....	....	....	....
23¾	3½	7¼	3½	150,000	100	do pfd.	....	Feb. 1, 22	700	5¼	4	4⅛	— ⅛
3¾	½	1½	½	2,500,000	N.P.	Pierce Petroleum Corp.	....	Feb. 16, 31	3,200	¾	†½	¾	+ ⅛
20½	4⅛	7½	4	2,441,432	$25	Prairie Oil & Gas Co.	....	Mar. 31, 31	....	....	....	....	....
26½	5¼	9¾	5¾	4,050,000	25	Prairie Pipe Line Co.	....	July 1, 31	1,300	7½	6¼	7¼	+ 1
6	1	1¾	¼	749,017	50	Producers & Refiners Corp.	....	Sept. 15, 23	700	¼	⅛	⅛	— ⅛
16	3	9¾	1	56,907	50	do pfd.	....	May 4, 25	160	2	1¾	1¾	0
11⅛	3⅛	5⅛	3⅛	3,038,370	25	Pure Oil Co.	....	Sept. 1, 30	3,300	4	3⅝	4	+ ⅛
101⅛	53⅛	60⅛	50	130,000	100	do 8% pfd.	$2Q	Apr. 1, 32	190	54	53	54	— ½
6⅜	⅜	¾	⅜	2,126,250	N.P.	Richfield Oil Co. (California)	....	Sept. 1, 30	300	½	½	½	0
10¼	1¼	2¼	2	1,235,815	N.P.	Rio Grande Oil Co.	....	July 25, 30	4,200	2⅛	1⅞	2⅛	0
42⅝	13	23	12⅛	558,343	$13.40	Royal Dutch Co. (N. Y. shares)	93.85c	Aug. 4, 31	28,600	17	15	16⅛	+ 1
20¾	5⅛	9⅛	6¾	1,244,383	N.P.	Seaboard Oil Co. of Del.	....	Oct. 15, 24	19,500	9⅛	7½	8⅜	+ ⅛
34	5	15¾	8	62,825	£2	Shell Transport & Trading Co.	72.6c	July 23, 31	....	....	....	....	....
10¾	2⅛	4¼	2½	13,070,625	N.P.	Shell Union Oil Corp.	....	June 30, 30	6,400	3⅛	2⅝	3	+ ⅛
78	15	31	19	400,000	$100	do pfd.	....	July 1, 31	700	23½	22⅜	23	— ½
11	3⅛	6	3¼	869,271	10	Simms Petroleum Co.	....	Sept. 15, 30	1,400	4⅛	3¾	4	0
12⅞	2	4½	2½	1,000,000	25	Skelly Oil Co.	....	Dec. 15, 30	500	3¼	3¼	3¼	— ⅛
62	10	19	12	120,000	100	do pfd.	....	May 1, 31	....	....	....	....	....
21	8⅛	10⅛	8	31,764,443	25	Socony Vacuum Corp.	25cQ	Mar. 15, 32	41,200	8⅞	8	8¼	+ ⅛
106	87½	91½	83	764,935	100	S. O. Export Corp. pfd.	$2.50S.A.	Dec. 31, 31	300	84	83	84	+ ¼
51¼	23⅛	27⅛	16¼	13,102,900	N.P.	S. O. California	50cQ	Mar. 15, 32	22,900	19¼	17½	18½	+ ¼
19	7¾	12⅜	7	320,000	$25	S. O. Kansas	....	Mar. 16, 31	200	7⅞	7½	7⅞	+ ½
52½	26	31½	19½	25,735,466	25	S. O. New Jersey	††25cQ	Mar. 15, 32	136,000	25½	21½	24⅞	+ 2
45⅛	26¼	32	24¾	1,544,365	N.P.	Sun Oil Co.	25cQ	Mar. 15, 32	700	27⅛	26¾	27	0
104½	75	73¾	70	100,000	$100	do pfd.	$1.50Q	Mar. 1, 32	20	*73¾	73¾	73¾	+ 1½
1¾	⅛	3	¼	776,979	N.P.	Superior Oil Corp.	....	....	200	*3	2⅝	2⅝	— ⅜
35⅞	9½	13⅛	10	9,851,236	$25	The Texas Corp.	25cQ	Apr. 1, 32	22,700	11⅝	10⅛	10⅞	+ ¼
6½	1⅛	2⅜	1⅛	930,454	10	Texas Pacific Coal & Oil Co.	....	Dec. 31, 29	1,300	2	1¾	2	0
9	2⅛	3½	2	5,998,086	N.P.	Tide Water Associated Oil Co.	....	Feb. 16, 31	11,200	2¾	2¼	2¼	— ⅜
68	20½	30⅝	20	695,494	$100	do pfd.	$1.50Q	Apr. 1, 32	1,200	29⅝	28	28¾	— ¾
18	9⅛	9	7	2,191,954	N.P.	Tide Water Oil Co.	25cQ	Mar. 31, 32	....	....	....	....	....
83	30	41	30	199,446	$100	do pfd.	$1.25Q	Feb. 15, 32	400	40	36¾	38	+ 1
26⅝	11	13⅞	9	2,225,302	25	Union Oil Co. California	35cQ	Feb. 10, 32	4,100	9⅝	9	9¼	+ ⅛
25⅛	16	19¼	12	1,254,048	N.P.	Union Tank Car Co.	40cQ	Mar. 1, 32	1,500	13½	12⅛	13	+ ⅜
7⅜	⅛	1⅞	⅝	769,531	N.P.	Warner Quinlan Co.	....	July 3, 30	....	....	....	....	....
9¾	2¼	5¼	2¾	428,967	5	H. F. Wilcox Oil & Gas Co.	....	May 10, 28	2,000	3½	2¾	3½	+ ½

*New high. †New low. ††Also extra—S. O. New Jersey 25c. Total sales 451,200

Shell Has Penny Sale Days For Specialties

ST. LOUIS, May 19.—One-cent sales in the manner of the drug store have been tried out with such success by the Shell Petroleum Corp. at its service stations that these three-day sale days will be in effect again in May and June. There was such a sales period in April, following a try-out held last February at Chicago, Milwaukee and New Orleans.

These penny sales feature Shell specialties, such as handy oil, lighter fluid, spot remover, fly spray and Kleanzit. When the customer asks for a 3-ounce can of handy oil, regularly 25c he can have two such cans for 26 cents, and so on.

Items carrying the same list price are interchangeable. A customer may purchase a can of lighter fluid and a can of spot remover for 26 cents, since each sells at a list price of 25 cents; or he can buy a half gallon can of Kleanzit and a pint can of fly spray for 76 cents, each costing regularly 75 cents; a gallon can of Kleanzit and a quart can of fly spray for $1.26, and so on.

The company finds that this is an excellent method of acquainting housewives with Shell specialties, of attracting new business and holding the old.

Dealers also have been given the privilege of stocking up on these specialties at special rates until May 1, according to the March-April issue of "Shell Globe," company publication.

Forms New Company

TULSA, May 21.—H. J. Scott, former salesmanager of the Marathon Oil Co., and George K. Homer and Dan Hunt, Jr., formerly of the sales department of the same company, have incorporated in Oklahoma the Transcontinental Oil Co. They plan to operate filling stations in Oklahoma and Arkansas.

Tank Wagon Price Changes

(Continued from page 61)

Naphtha Prices

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	11.7	13.7	15.2
Detroit	14.5	16	16.8
Kansas City	†13	†14.5	†15.3
Milwaukee	*17.5	*19	*19.8
Minneapolis	**17.8	**19.3	**20.1
St. Louis	12.7	14.2	15
New York	...	14	17
Boston	...	17	17
Philadelphia	...	15	....

*Includes 4c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b. refinery or seaboard terminal)	
New York Harbor	9.00
Philadelphia district	9.00
Providence	9.50
Tank Wagon or Steel Barrels	
New York City	14
Syracuse	17
Rochester	15
Buffalo (net price)	14
Providence	16
Boston	18
Bridgeport	16
Newark	14
Philadelphia	15
Lancaster	17–18
Altoona	17–18
Baltimore	16

Note: 2c off above t.w. prices to large buyers in some instances.

S. O. New Jersey Stock

(Continued from page 66)

Product developments included Paraflow, a hydrocarbon that increases fluidity of lubricating oils at low temperatures; also a safety fuel (non-inflammable gasoline) for aeronautic and light marine engines.

Half interest in hydrogenation patents outside United States and Germany were sold to Royal Dutch-Shell group.

"The evils inherited from previous years continued to exert their influence," said Mr. Teagle of domestic marketing. "While some companies restricted refinery runs to market demands, the fact remains that gasoline in storage increased during the year. With excessive stocks hanging over the market, wide-spread price cutting was inevitable and resulted in reducing the wholesale price below a proper relationship to the cost of crude, even at the depressed price of raw material.

"Enforced operating economies and close scrutiny of new capital investments checked to some degree the further tendency toward unnecessary duplication of both retail and wholesale distributing stations. Nevertheless, the pressure to move surplus stocks further intensified the wasteful struggle to secure the maximum gallonage at the expense of prices."

He recounts, like many other high oil executives demoralization exorbitant gasoline taxes have brought on; evasions are costing stockholders and the public millions of dollars a year. He warns that higher taxes not only encourage the racketeer but decrease consumption.

Aviation has become a definite factor in consumption of gasoline and oils. The company's stations have obtained a substantial volume of tire business, he reported, and was making progress in selling batteries, lamp bulbs, spark plus and other automobile necessities.

Foreign markets also were askew. Demoralization of commercial balances, leading to the abandonment of the gold standard by Great Britain, restrictions by various governments against the purchase of exchange in settlement for imports, uncertainty as to fulfillment of obligations to the United States, and a wave of tariff legislation all tended to impede international trade, Mr. Teagle reported. And to the foregoing he added political unrest in South America.

The New Jersey company and subsidiaries had 114,656 employes at the end of 1931, of which number 43,453 were in the United States and 71,203 in foreign countries. Employes in the United States at the end of 1930 numbered 51,760.

Dec. 31 it had 127,041 stockholders, of whom 75,417 were men, 45,900 women and 5724 were institutions; gain in total was 15,000 in year. At dissolution in 1911 company had 6078 stockholders.

Taxes paid last year in all countries totaled $60,654,540 of which sum $35,751,835 was paid our states as gasoline taxes.

The accompanying tables give details of the company's operations and financial standing at the end of 1931. Feb. 1, this year, the company retired $30,000,000 of its 5 per cent debentures.

Bobrose Elects Officers

HOUSTON, May 19.—At the annual meeting of the Bobrose Oil and Refineries, Inc., San Antonio, the following officers and directors were elected: Robert Rose, president; Mrs. Robert Rose, vice president; H. M. McDaniel, director, secretary-treasurer, and purchasing agent; Giles M. Bailey, director and manager of sales; H. E. Read, director and manager of refineries.

Summer Meeting for S. Dakota Jobbers

SIOUX FALLS, S. D.—A summer meeting at Madison, S. D., will be held by the South Dakota Independent Oil Men's Association, according to J. H. Cumbow, president, Cumbow-Lanning Oil Co. here, and a director of the association. The dates will be announced later.

THE OIL INDUSTRY EXCHANGE

Positions Wanted

PETROLEUM MARKETER experienced refinery sales, service and bulk stations management, purchases and traffic. Address Box 835.

SALES REPRESENTATIVE desires connection with refinery, Ohio and adjacent territory—gasoline, motor oil, etc. Well known—established trade. Have car, office, etc. Address Box 875.

REFINERY SUPERINTENDENT, 12 years topping and cracking experience, desires connection. Asphalt, road oils, gasoline, kerosene, lubes and construction. Address Box 879.

YOUNG MAN WITH EXTENSIVE EXPERIENCE in refining light and heavy oils, cracking and reforming, desires connection with company offering opportunity for advancement. Address Box 882.

REFINERY SUPERINTENDENT now employed desires new connection. Fourteen years experience, operating and constructing, lube, crackers, topping, technical training. Address Box 883.

REFINERY TANK CAR SALES MANAGER

Continuous sales record and close acquaintanceship with jobbers, marketers and industrial concerns over entire Group 3 territory, South and Southeast.
Successfully directed both with and without salesmen, following methods of selling:

Branded Products to jobbers and controlled outlets.

Unbranded Products to jobbers, marketers and industrial concerns.

At present employed.
References from past and present employers, marketers and customers.
Salary no object until sales ability is proven.
Address Box 873

Miscellaneous

WHAT IT COSTS

"For Sale," "Wanted to Buy," "Help Wanted," "Business Opportunities."
"Miscellaneous" classifications, set in type this size without border—10 cents a word. Minimum charge, $3.00.
"Position Wanted" — 5 cents a word. Minimum charge $1.00.
Advertisements set in special type or with border—$4.00 per column inch.
Copy must reach us not later than Friday preceding date of issue.
All advertisements carried on this page are payable in advance.

For Sale

Six International Trucks, 4-compartment tanks; Republic Truck, 1,000-gallon tank; three GMC Trucks, 1,000-gallon tanks; Brockway Truck, 1,000-gallon tank. Oriole Oil Company, 2365 Wilkens Ave., Baltimore, Md.

Business Opportunities

CARGOES GASOLINE WANTED

Marketer with deepwater tankage on Eastern Seaboard would enter into close working arrangement with Pacific Coast or Gulf Coast refiner for steady supply of gasoline in cargoes, which is resold to jobbers in tank cars and barges.
Address Box 881

TRADE FOR OIL STATION

160 Acres good land, improved, at Winner, S. D., to trade for oil station or station and bulk plant. Write me.

W. E. Lewis, Fremont, Nebr.

Professional Services

W. S. Barstow & Company
Incorporated
Engineering—Design—Construction
Industrial Plants—Public Utilities
Consultation Invited on Building Projects
120 Wall Street, New York City — **412 Washington Street, Reading, Penna.**

ANTI KNOCK VALUE DETERMINATIONS
The Gray Industrial Laboratories
Chemists and Engineers
Specialists on Petroleum Products
961-976 Frelinghuysen Ave., NEWARK, N. J.
Telephone Terrace 3-4020

ROYAL E. BURNHAM
Attorney-At-Law
Patent and Trade Mark Practice Exclusively
Continental Trust Building
Washington, D. C.

Standard Oil Stocks on New York Curb Market

1931 High	1931 Low	1932 High	1932 Low	Shares Issued	Par Value	Company	Div. Rate	Div. Period	Last Div. Paid	Transactions Week Ended May 21 Sales Shares	High	Low	Last	Week's Change
16	6	6¼	6	40,000	$25	Borne Scrymser Co.	....		Oct. 15, 30	.....	.....	.....	.....	.....
56	30	35	24⅛	200,000	50	Buckeye Pipe Line Co.	$1Q		Mar. 15, 32	100	27	27	27	+ 2
129½	75	90	62	120,000	25	Chesebrough Mfg. Co.	††$1Q		Mar. 31, 32	200	65	†62	62	— 6½
3½	1⅜	2½	1¾	5,977,873	N.P.	Creole Petroleum Co.	....		.....	4,000	2¼	2¼	2¼	+ ⅛
36	19	32	23	50,000	$100	Eureka Pipe Line Co.	$1Q		May 2, 32	50	25	25	25	+ 1⅜
72	44¼	49	37⅜	2,974,645	25	Humble Oil & Refg. Co.	50cQ		Apr. 1, 32	1,200	39½	39	39½	+ ½
18½	7⅜	9½	6⅝	26,557,496	N.P.	Imperial Oil Corp. coup.	12½cQ		Mar. 1, 32	9,900	8⅛	7⅞	8	0
18	7⅛	9⅜	7	.....	N.P.	do registered	12½cQ		Mar. 1, 32	.....	.....	.....	.....	.....
21¼	5½	7½	3	300,000	$10	Indiana Pipe Line Co.	25cQ		Feb. 15, 32	300	3½	3½	3½	+ ⅜
15½	7⅜	10⅝	8⅜	14,247,088	N.P.	International Petroleum Co.	25cQ		Mar. 15, 32	12,900	10½	10	10⅜	+ ⅜
17½	5	10½	6⅞	509,000	$12.50	National Transit Co.	25cQ		Mar. 15, 32	400	8⅞	8¼	8⅞	+ ⅛
14½	5⅞	4	2⅞	100,000	5	New York Transit Co.	10cQ		Apr. 15, 32	200	3	†2⅞	2⅞	— ⅛
35½	20	4½	3	120,000	10	Northern Pipe Line Co.	$1.50S.A.		Jan. 2, 32	800	4	3¼	4	+ ⅛
102⅞	67½	76¼	60	580,668	100	Ohio Oil Co. pfd.	$1.50Q		Mar. 15, 32	.....	.....	.....	.....	.....
15½	5½	6⅜	4	400,000	25	Penn Mex. Fuel Co.	50c		Oct. 31, 31	.....	.....	.....	.....	.....
17	7	10	8	100,000	10	Southern Pipe Line Co.	50cQ		Mar. 1, 32	.....	.....	.....	.....	.....
23⅞	9¼	14½	9⅝	1,200,000	25	South Penn Oil Co.	25cQ		Mar. 31, 32	1,500	12⅝	12¼	12¼	— ⅛
42½	25	37	29	35,000	50	South West Pa. Pipe Lines	$1Q		Apr. 1, 32	50	29	†29	29	+ 1
38½	13½	19¼	13⅛	16,996,596	25	S. O. Indiana	25cQ		Mar. 15, 32	31,800	*19¼	17¼	18½	+ 1
23⅝	12⅛	15⅞	10	2,606,983	10	S. O. Kentucky	40cQ		Mar. 31, 32	2,700	12	11⅛	11⅛	— ¼
36½	16	19	10½	190,822	25	S. O. Nebraska	50cQ		Mar. 21, 32	.....	.....	.....	.....	.....
62½	23	28⅛	15½	120,000	25	S. O. Ohio	62½cQ		Apr. 1, 32	550	25	23½	25	+ ½
115¾	78½	85	80	34,158	100	do 5% pfd.	$1.25Q		Apr. 15, 32	.....	.....	.....	.....	.....
10	1	2	1¾	.....	25	Swan Finch Oil Corp.	....		Jan. 15, 32	200	1⅞	1¾	1¾	— ¼

*New high. †New low. ††Also extra—Chesebrough 50c.

Oil and Royalty Stocks on New York Curb

1931 High	1931 Low	1932 High	1932 Low	Par Value	Company	Sales Shares	High	Low	Last	Week's Change
1¾	⅛	⅝	⅛	N.P.	American Maracaibo	1,200	½	7/16	½	0
6½	1⅛	2¾	1⅛	N.P.	Arkansas Nat. Gas	900	1¼	1⅛	1⅛	0
6¾	1⅛	2⅜	1	N.P.	do A	1,400	1⅛	1	1	— ¼
7	3¼	5½	3⅝	$10	do pfd.	400	3⅞	3⅞	3¾	+ ⅛
1	½	⅛	⅛	N.P.	Atlantic Lobos	.....	.....	.....	.....	.....
3⅛	⅛	⅝	⅝	$50	do pfd.	.....	.....	.....	.....	.....
16⅞	6¼	9¾	7⅝	N.P.	British Amer. Oil coup.	100	7⅝	7⅝	7⅝	0
16¾	10	..	..	N.P.	do registered	.....	.....	.....	.....	.....
2⅜	¼	⅝	¼	$¼	Carib Syndicate	200	½	½	½	+ ⅛
20¾	5	6⅞	3⅜	N.P.	Cities Service	42,500	3⅞	3½	3¾	0
84¾	35⅜	53⅜	29⅜	$100	do pfd.	2,200	35½	31½	31½	— 2⅞
7½	4	4½	2½	$10	do pref. B	.....	.....	.....	.....	.....
84	41½	45	24	100	do pref. BB	.....	.....	.....	.....	.....
3⅛	¼	⅝	⅝	N.P.	Colon Oil Corp.	300	½	½	½	0
7⅛	1	1⅞	⅝	N.P.	Columbia Oil & Gas vtc.	1,000	¾	⅝	⅝	— ⅛
2¾	1	1⅜	1	$1	Consolidated Royalty	.....	.....	.....	.....	.....
3¾	⅝	1	½	N.P.	Cosden Oil	1,900	½	½	½	0
15	1	2	2	$100	do pfd.	.....	.....	.....	.....	.....
⅝	⅛	½	⅛	N.P.	Crown Central Pet.	.....	.....	.....	.....	.....
5	1¾	2½	1⅝	N.P.	Darby Petroleum	200	*2½	2½	2½	+ ½
6	1½	2⅛	1½	N.P.	Derby Oil & Ref'g.	.....	.....	.....	.....	.....
40⅛	25	24½	13¼	N.P.	do pfd.	25	15	15	15	0
76	25⅜	35¼	25⅜	$25	Gulf Oil Corp.	7,800	32⅜	29	29½	+ ¼
9¾	9⅜	..	..	N.P.	Honolulu Oil Corp.	.....	.....	.....	.....	.....
16⅞	4¼	4½	2½	N.P.	Indian Ter. Ill'g. Oil A.	200	2⅝	†2½	2½	— ¼
16¾	5	4½	3	N.P.	do B	.....	.....	.....	.....	.....
⅝	⅛	¼	⅛	$5	Intercontinental Pet.	700	⅛	⅛	⅛	0
1⅞	¼	⅝	⅜	N.P.	Kirby Petroleum	.....	.....	.....	.....	.....
1½	¼	½	⅛	$25	Leonard Oil Devel.	300	⅜	¼	⅜	+ ⅛
6¾	1½	2¼	1½	N.P.	Lion Oil Refining	.....	.....	.....	.....	.....
29	5½	9¼	3⅝	N.P.	Lone Star Gas	400	4	4	4	0
½	⅛	..	..	$25	MacMillan Petroleum	.....	.....	.....	.....	.....
1¾	⅛	⅛	⅛	1	Magdalena Syndicate	.....	.....	.....	.....	.....
5	1⅛	6⅛	3¼	N.P.	Margay Oil Co.	.....	.....	.....	.....	.....
4⅜	1½	2	2	N.P.	Mexico-Ohio Oil	.....	.....	.....	.....	.....
8½	1¾	2	½	N.P.	Michigan Gas & Oil	.....	.....	.....	.....	.....
4¾	⅞	2⅛	⅛	N.P.	Mid. States Pet. A v.t.c.	300	⅞	¾	⅞	+ ⅛
1½	⅛	½	⅛	N.P.	do B v.t.c.	100	⅜	⅜	⅜	— ⅛
11	¾	2⅛	⅛	$5	Missouri-Kansas P.L.	200	⅛	⅛	⅛	0
⅝	⅛	¼	⅛	1	do B v.t.c.	.....	.....	.....	.....	.....
½	⅛	⅛	⅛	1	Mountain & Gulf	.....	.....	.....	.....	.....
5½	2	3⅛	2¼	10	Mountain Producers	1,800	*3⅛	2¼	3	+ ¾
26½	9¾	13½	10	N.P.	National Fuel Gas	800	10⅞	10¼	10⅝	0
1½	⅜	¾	⅜	$5	New Bradford Oil	.....	.....	.....	.....	.....
2⅛	¾	..	..	10	New England Fuel	.....	.....	.....	.....	.....
6½	6½	..	..	10	North Amer. Oil	.....	.....	.....	.....	.....
3¼	1⅛	1	⅝	N.P.	North Central Texas	.....	.....	.....	.....	.....
2¼	¼	⅜	¼	N.P.	North European	.....	.....	.....	.....	.....
5	⅝	1	¾	N.P.	Oil Stocks, Ltd. A	.....	.....	.....	.....	.....
4⅛	2	..	..	N.P.	do B	.....	.....	.....	.....	.....
15	2⅞	6¼	3¾	N.P.	Pacific Western Oil	300	3¾	3¾	3¾	0
½	⅛	⅛	⅛	N.P.	Pandem Oil	.....	.....	.....	.....	.....
2	⅜	½	¼	N.P.	Pantepec of Venezuela	200	⅜	¼	¼	— ⅛
19	6	7¾	6	$5	Plymouth Oil	106	6⅜	6⅜	6⅜	— ⅜
4½	¾	⅝	¼	N.P.	Producers Royalty	1,400	¼	¼	¼	0
83½	49⅞	49½	44	$100	Pure Oil 6% pfd.	.....	.....	.....	.....	.....
2½	⅝	1	1	N.P.	Red Bank Oil	250	1	1	1	+ ⅜
2½	¼	½	¼	N.P.	Reiter-Foster Oil	100	¼	¼	¼	0
11	¼	1	⅜	$25	Richfield Oil pfd.	100	⅜	†⅜	⅜	0
6½	1⅜	1½	1¼	N.P.	Root Refining pfd.	.....	.....	.....	.....	.....
3¾	½	½	½	$10	Royalty Corp. pfd.	.....	.....	.....	.....	.....
3	¾	1¼	¾	N.P.	Ryan Consolidated	100	1⅛	1⅛	1⅛	0
1⅜	⅛	½	⅛	$10	Salt Creek Consol.	200	⅜	⅜	⅜	0
7⅝	2¾	4½	3¼	10	Salt Creek Prod.	1,600	3⅞	3¼	3⅞	+ ⅝
7	1	1¼	1	25	Shreve. El Dorado P.L.	.....	.....	.....	.....	.....
7½	3½	3⅝	3	N.P.	Southland Royalty	400	3¼	3¼	3¼	+ ¼
5¼	¼	½	¼	$5	Sunray Oil	800	1/16	1¼	1¼	0
12⅝	2½	6⅝	4½	N.P.	Texon Oil & Land	800	5	4¾	4¾	0
24½	9½	12	8	$25	Union Oil Associates	100	8	†8	8	— ⅝
1⅞	¼	½	3/16	5	Venezuela Petroleum	500	¼	†1/16	¼	0
3½	1⅛	2	1¼	1	Woodley Petroleum	.....	.....	.....	.....	.....
2¼	¼	½	⅛	N.P.	Y Oil & Gas	300	1/16	1/16	1/16	— 1/16

*New high. †New low.

New York Bonds

Week Ending May 20

	High	Low	Last	Change
Asso. Oil Gold 6s	98	97¾	97¾	— ¼
Atlantic Refg. deb. 5s	94⅛	94	94	0
Cal. Pet. 5s	76	76	76	— ¾
Cal. Pet. 5½s	80½	80	80½	+ ½
General Pet. 5s	100¼	99¾	100¼	+ ¼
Humble Oil & Refg. 5s	98⅞	97	98⅛	+ ⅞
Humble Oil & Refg. 5½s	100⅝	100⅜	100⅝	+ ⅛
Pan Amer. P & T 6s	101⅞	101⅝	101⅝	— ¼
Pan Amer. Pet. Calif. 6s	8	8	8	—2½
Pan Amer. Pet. Calif. 6s ctfs	5⅛	5⅛	5⅛	+1⅛
Phillips Pet. 5¼s	55¼	54	55	+ ¼
Pure Oil 5½s	75	74	75	0
Pure Oil 5½s	70½	69½	70¼	0
Richfield Oil of Calif. 6s	7½	6	7½	+1½
Shell Union Oil 5	62	60¼	62	+1
Shell Union Oil 5s w. war.	63	60⅝	61	+ ½
Sinclair Con. Oil 7s	87	86½	86¾	+ ¼
Sinclair Con. Oil 6½s	85	84⅜	84½	0
Sinclair Con. Crude 5½s	99½	99	99¼	+ ¼
Sinclair Pipeline 5s	96	95⅜	95½	+ ⅛
Skelly Oil 5½s	58½	57¾	57¾	—1
S. O. N. J. 5s	101⅜	100⅞	101	— ⅜
S. O. N. Y. 4½s	87	86	86½	— ½
Union Oil of Calif. 6s A	95½	95¼	95¼	+ ⅛
Union Oil of Calif. 5s war.	73¼	73¼	73¼	+ ¼
Warner-Quinlan 6s	18⅜	18⅜	18⅜	— ⅛
White Eagle Oil 5½s war.	101	100¼	100¼	— ⅛

New York Curb Bonds

Week Ending May 20

	High	Low	Last	Change
Cities Serv. 5s '50	33⅜	31⅞	32½	— ½
Cities Serv. 5s '66	32¼	28⅛	28¾	—4
Cities Serv. G. 5½s '42	40¼	39	39½	+ ¼
Cities Serv. G. P. 6s '43	55	53⅝	54¾	— ¼
Cont. Oil 5¼s '37	85	82¾	85	+2½
Empire O & R 5½s '42	34	33	33½	— ¼
Gulf Oil 5s '37	93	91⅞	92	0
Gulf Oil 5s '47	87½	86	87	0
Indep. Oil 6s '39	82⅛	81¼	81¼	—1¼
Sun Oil 5½s '39	91	90	90	0
Sun Oil 5s '34	89	89	89	0
Valvoline Oil 7s '37	80	80	80	—5

Pittsburgh Stock Exchange

Transactions Week Ended May 20, 1932

	Sales	High	Low	Last	Change Over Week
†Col. Gas & Elec.	1,135	8	7⅞	7⅞	— ¼
Devonian Oil	80	4½	4½	4½	+ ½
Lone Star Gas	2,076	4¼	4⅛	4¼	+ ⅛
Plymouth Oil	120	6½	6	6¼	— ⅜
‡Western Public Service	3,425	3¼	3	3	— ⅛

†Payable in new 5 per cent preferred stock; ‡Unlisted.

New Equipment

SEVERAL improvements in its semi-trailers and an entirely new semi-trailer are announced by Fruehauf Trailer Co., Detroit.

A major improvement is the floating fifth wheel which makes the semi-trailer actually float on rubber, the shocks of starting and stopping being cushioned with molded blocks of live rubber which replace the usual steel draft springs. The rubber blocks also carry the weight of the front end of the trailer and take the side thrusts as well in turning corners.

Another improvement is in the manual type coupler. The coupling and locking mechanism have been simplified by making the coupling action automatic and locking positive. A handle on the coupler is pulled to uncouple the trailer and when that is done it is left all set for automatic coupling again.

A new light type semi-trailer with nine-ton gross capacity has been developed in two models. The platform height is kept down to a minimum, the rear axle has auxiliary springs and there are other improvements in design and construction.

An outstanding feature in the new four-wheel trailers of narrow pressed steel frames is the drop in the frame to allow for clearance of the rear wheels and by lowering the rear portion of the frame, the built-up subframe for the rear wheels has been eliminated, saving weight and lowering the center of gravity of the unit.

* * *

THE Griscom-Russell Co., 285 Madison Ave., New York City, manufacturer of refinery equipment, has removed its Dallas, Tex. offices to 501 Tower Petroleum building.

* * *

PRODUCTION of large size, low pressure tires called the Ample-Aire Pharis Wheel has begun by the Pharis Tire & Rubber Co., Newark, O. Sizes being made at present are the 6.15-16; 7.50-15, and 8.25-15, all designed for 12-pound pressure. These Ample-Aire wheels are furnished in complete sets, five wheels, five tires and five tubes.

The new tires are designed for safety and long wear under modern high speed driving, free-wheeling and quick stopping. Among the features are the Pharis cushion cap on strong, flexible carcass, its center traction and running ribs, deep non-skid tread and sturdy side walls.

* * *

A NEW steam operated controller is announced by C. J. Tagliabue Mfg. Co. in its sales bulletin No. 1024. The new device is featured by a compact control head which houses the control port as well as the thermostatic bellows for the purpose of eliminating leakage, corrosion and possible injury from without. Accuracy of the device is not affected by variations in pressure.

* * *

THE latest six-wheel product of the Federal Motor Truck Co., Detroit, is an 8-ton heavy-duty truck. The driving axle is at the rear, with the dead axle ahead, providing increased traction to the driving wheels.

The truck carries a gross rating of 28,000 pounds, has an 80 h.p. six-cylinder engine with seven-bearing crankshaft and is built in three wheelbase lengths, 188-inch, 206 and 224-inch.

* * *

WALTER PARKER, former chief engineer of the Fry Pump Co. and later engaged in doing special engineering work for the Pittsburgh Equitable Meter Co., has been appointed chief engineer of the latter's liquid meter division.

Mr. Parker has had long experience in designing and building meters and allied equipment for oil and water industries.

* * *

A NEW line of welding rods and electrodes, called RegOroD including those of all popular types such as high speed and high test materials, has been developed by The Bastian-Blessing Co., 240 E. Ontario St., Chicago, manufacturer of equipment for using and controlling high pressure gases.

A new pocket size catalog gives a complete description of each rod and information on the proper rod for use in specific applications. There are tables for use of the welder and engineer.

* * *

A GREASE solvent said to be the result of 10 years of effort to produce a solvent which would thoroughly remove grease and oil from all surfaces has been developed by Puro Products Co., Cleveland. It is known as Puro grease solvent and is recommended particularly for removing grease, oil and dirt from concrete driveways at service stations, lubritoriums and rest rooms.

The product comes in powder form. It can be used dry on some surfaces but for such work as the cleaning of automobile engine, chassis and under parts, it works best in solution in a spray gun. A leaflet put out by the company tells how to remove oil and grease from concrete and other stains and dirt from other surfaces.

ADVERTISERS IN THIS ISSUE

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